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A Better Way To Manage Cables

The Standards-Based Any-To-All Structured Cabling System From Siemon Is Adaptable & Agile

In the data center, there are a variety of cabling design options to choose from. The two common alternatives are point-to-point (as used in top-of-rack switching) and structured systems via a standards-based structured cabling system. The goal of both is to easily connect your servers, storage devices, and other physical infrastructure together, but if you look at the benefits and drawbacks of both systems, you'll get a clear idea of which type should be the cabling foundation of your data center.

"One of the main issues with point-to-point systems is that electronics frequently change," says Carrie Higbie, global director of data center solutions and services at Siemon (www.siemon.com). "You could have a situation where a network interface card is on the left and it used to be on the right so the short point-to-point cable won't reach. This leads to abandoned cable, which may be difficult to pull. You might have to change cables out when you change your interface or vendor with point-to-point cables."

There's also the possibility that with primarily point-to-point systems and the constant cable swapping that takes place, you'll lose track of connections and end up with a jumbled mess of cables in and around cabinets. That isn't to say you can't have a cabling system that's a hybrid of the two.

The key is finding the perfect balance between the two and not simply turning to point-to-point systems based on the recent press surrounding top-of-rack and end-of-row switch mounting options. In short, structured cabling provides highways in the data center to allow flexibility and agility in those systems not limited by short point-to-point distance barriers.

Any-To-All Structured Cabling System

With a standards-based any-to-all structured system, copper patch and fiber panels are installed in every cabinet, and they match up with copper patch panels that are installed in patching zones. Using copper patch cords or fiber jumpers, it's possible to connect any piece of equipment to another piece within the zone without having to change the permanent link of the channel. Simply put, equipment placement requires patch cords. And because all pathways are predetermined, it keeps a data center from creating an air dam under the floor or a safety issue overhead as they are properly sized and filled. This opens up switch ports that would be unusable in some cabinets due to distance limitations to any other cabinet cabled within the zone. This can have a dramatic impact on the number of switches required in a data center.

Any-to-all has the agility to match its adaptability, as well. For instance, if you are overhauling your virtualized applications or upgrading/moving servers, you may need to move them onto other networks based on functionality. With any-to-all structured cabling, this process is quick and painless because you can connect anywhere in the zone via the patch cord/jumper change without having to physically relocate equipment if it is in the same zone.

Lower New Cable & Cooling Costs

It's possible to have the perception that point-to-point cabling is a cheaper alternative because you aren't overhauling your entire infrastructure but instead just switching out individual cables. The problem with this is that you have to take the cost of those cables into account and whether it is cost-efficient to buy brand new cables every time technology or vendors shift. The length limitation on many of these cables causes a need to increase switch port purchases to accommodate the 5m limits. In one example, a large insurance company with a 336-cabinet data center would have had to purchase 504 unnecessary switches across two networks to use point-to-point cabling. The cost of the switches maintenance was about $2.2 million over three years. A structured system to zone the switches was about $275,000.

SIEMON™

The any-to-all system is built specifically to adapt and so you won't have to worry about purchasing new cables because you'll already have flexibility no matter how you decide to change your server room. Additionally, most structured cable systems carry a 20-year warranty compared to the 90-day warranty on interconnect cables sold with top-of-rack switches. You save money in the long run by having that solid foundation in place. But there are also possibly unforeseen savings associated with structured cabling systems and especially any-to-all Cooling is often a hot topic in server rooms because the demands of applications continue to grow, and you have to prevent damage due to overheating any way you can. With point-to-point top-of-rack systems, you don't necessarily have a choice of where to place equipment. With structured systems, because you open up an entire zone or distribution area, you can place equipment where it makes the most sense for power and cooling, not just where there is an empty network port. According to Higbie, it also gives you the option to scatter load, so you may not have to add supplemental cooling.

Plan For The Future

Any-to-all is flexible enough to keep up with the ever-changing IT industry. It can also work with and accommodate point-to-point systems, if needed. Any-to-all will serve you better as a primary cabling system because it's structured and easy to use, and it can save you money in cable, cooling, and total equipment costs.

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> The any-to-all system is built specifically to adapt, so you won't have to worry about purchasing new cables because you'll already have flexibility no matter how you decide to change your server room.

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   - ❑ Monthly
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News

AT&T Reports Sluggish Growth

AT&T reported revenue of $31.5 billion for the third quarter, down 0.3% from the third quarter last year. Net income was $3.6 billion, compared to $3.2 billion during the same quarter last year. AT&T says it gained 2.1 million mobile customers in the third quarter, giving it a total of 100.7 million customers. The company sold 4.8 million smartphones, and sales of Android devices more than doubled from the same quarter last year. However, the company activated only 2.7 million iPhones, the lowest number since the first quarter of last year. AT&T faces increased competition for iPhone sales now that Verizon and Sprint also carry the device.

RIM Faces Trademark Dispute

Blackberry-maker RIM is facing a lawsuit from a New Mexico business that claims the name of RIM's new BBX operating system infringes on its trademarks. Basis International, based in Albuquerque, says it has trademarked its BBx operating system-independent language, toolset, and database and that RIM's use of the BBX name could confuse consumers. The statement from Basis came a day after RIM announced its new BBX software platform for BlackBerry smartphones and PlayBook tablets. Basis has threatened to take further legal action against RIM, after already sending the company a cease and desist letter to stop using the BBX name.

Oracle Acquires RightNow

Oracle announced that it will acquire RightNow, which specializes in Web-based customer service software, for $1.5 billion. RightNow also provides social media management, application development, and search technologies. The acquisition is meant to expand Oracle's cloud-based services. In October, CEO Larry Ellison introduced Oracle Public Cloud, a platform for the company's enterprise cloud services, including sales force automation, talent management, human resources, databases, social networking, and Java. One week before this announcement, Oracle bought Endeca Technologies, a business intelligence software company. The RightNow acquisition is Oracle's largest since it bought Sun Microsystems for $7.4 billion in 2010.

Microsoft Reports 7% Revenue Increase

Microsoft posted a 6% increase in net income, or $5.74 billion, for its first fiscal quarter. Revenue increased 7% from a year ago to $17.37 billion. Windows revenue, at $4.8 billion, increased less than 2% during the quarter, reflecting the slow growth in the PC market. Revenue from the business division, which includes Microsoft's Office suite of applications, rose 8% in the quarter, to $5.62 billion. Server revenue was $4.24 billion, an increase of almost 10%. Online services revenue increased 18.6% to $625 million.

Acer Revenue Falls 30%

Taiwanese computer manufacturer Acer reported a $36 million loss in the third quarter as demand for tablets reduced PC sales. Third-quarter revenue fell 30% year over year to $3.9 billion. The quarter's net loss is worse than analysts expected; Acer posted a greater net loss of $222 million in the second quarter. Acer's total shipments fell 20.6% in the third quarter, and the company has fallen from third to fourth place in the PC manufacturing market since the end of 2010, according to IDC. To offset falling PC revenue, Acer hopes to boost tablet sales to 7 million this year, but it faces competition from Apple's iPad, Android tablets, and Amazon's new Kindle Fire.

Vulnerability Found In XML Encryption

Researchers from the Ruhr University of Bochum in Germany devised a way to exploit a weakness in the XML encryption standard that would allow attackers to decrypt sensitive information. The attack specifically targets XML's cipher block chaining mode. Researchers Juraj Somorovsky and Tibor Jager sent modified ciphertexts to a server and then used the information gathered from the returned error messages to decrypt data. XML is a widely used standard that secures communications between Web services, including e-commerce, business communications, healthcare applications, and government infrastructures. The researchers said they notified affected XML users, including Microsoft, Amazon, IBM, and Red Hat, before releasing their findings.

Execs Feel Vulnerable To Information Theft

Half of senior executives feel that their companies are vulnerable to information theft, up from 38% last year, according to the Kroll Business Intelligence and Investigations annual fraud report. The survey included 1,200 senior executives from several industries around the world. Thirty-two percent of executives said that the complexity of IT infrastructure was a main reason for a company's exposure to fraud. About 25% of respondents listed high staff turnover, entry into riskier markets, weak internal controls, and increased collaboration with separate firms as other reasons for exposure. The survey also found that 22.9% of respondents said their companies had experienced information theft, loss, or attack.

Universities Embrace Mobile Apps

Many colleges and universities are increasing the number of mobile apps they offer, but they are slower in adopting cloud technologies, according to the 2011 Campus Computing Survey from the Campus Computing Project. The survey found that about half of four-year colleges and universities offer mobile applications, up from 30 to 40% last year. Forty-one percent of community colleges now offer mobile apps, compared to 12% a year ago. Last year, about one-third of public universities offered mobile apps, and now more than half have launched them. However, only 4.4% of the survey's respondents said their institutions had moved or are moving administrative systems to the cloud, and only 6.5% use cloud technology for storage, archiving, or business continuity services.

Study Finds Obstacles To BI Adoption

A survey from LogiXML found that the main obstacle for SMBs that have adopted business intelligence analytics is the ability to access and bring disparate data sources together. The other main obstacles companies face in gaining insight from their BI data include creating data models and formulas for analyzing data (59%) and presenting the results of that analysis in an understandable way (57%). The study, which included 605 IT professionals at SMBs in various industries, also found that dashboards and reporting (43%) are the main drivers for companies adopting BI. Other needs included predictive analytics (30%) and operational metrics and KPIs (26%).

IBM Names Rometty CEO

IBM announced that Virginia Rometty will succeed Samuel Palmisano as CEO on Jan. 1. Rometty is currently a senior vice president in charge of sales and marketing at the company. Palmisano, who will remain as IBM's chairman, said that Rometty has led some of the company's most important businesses, including the business services division. She also oversaw IBM's acquisition of PricewaterhouseCoopers in 2002. Rometty, who joined IBM as a systems engineer in 1981, is the first female CEO in the company's history and the second female executive to be named CEO of a major tech company in the past two months. Meg Whitman, former CEO of eBay, took over as HP's CEO in September.

Yahoo! Reports Drop In Profit, But Meets Analyst Estimates

Yahoo! released its profit statistics for the third quarter ending Sept. 30. Although the company reported a 26% drop in profit, the $293 million profit actually came in higher than analysts had expected. The company's total sales for the quarter reached $1.07 billion, which was more than analysts' estimates, as well. However, Yahoo!'s display advertising market share is decreasing. The company held a 14.4% share of display ads on U.S. sites last year, which is predicted to drop to 13.1% this year—both Google and Facebook are expected to see an increase in their shares of the display ad market, an 8.6% and 16.3% increase, respectively.

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 13 major companies in the technology market.

Company	Symbol	Year Ago	Oct. 13 $	Oct. 27 $	% change from previous issue
AMD	AMD	$7.63	$4.97	$5.54	▲ 11.47%
Apple	AAPL	$305.24	$408.43	$404.69	▼ 0.92%
CA Technologies	CA	$22.89	$21.46	$22.15	▲ 3.22%
Cisco Systems	CSCO	$23.19	$17.42	$18.44	▲ 5.86%
Dell	DELL	$14.59	$16.36	$16.32	▼ 0.24%
Google	GOOG	$618.58	$558.99	$598.67	▲ 7.1%
HP	HPQ	$42.66	$25.63	$26.99	▲ 5.31%
IBM	IBM	$140.90	$186.82	$185.88	▼ 0.5%
Intel	INTC	$20.47	$23.39	$25.13	▲ 7.44%
LinkedIn	LNKD	n/a	$86.22	$87.23	▲ 1.17%
Microsoft	MSFT	$26.28	$27.18	$27.25	▲ 0.26%
Oracle	ORCL	$29.36	$31.14	$33.66	▲ 8.09%
Red Hat Software	RHT	$42.22	$46.18	$51.11	▲ 10.68%
Symantec	SYMC	$16.45	$17.78	$17.74	▼ 0.22%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

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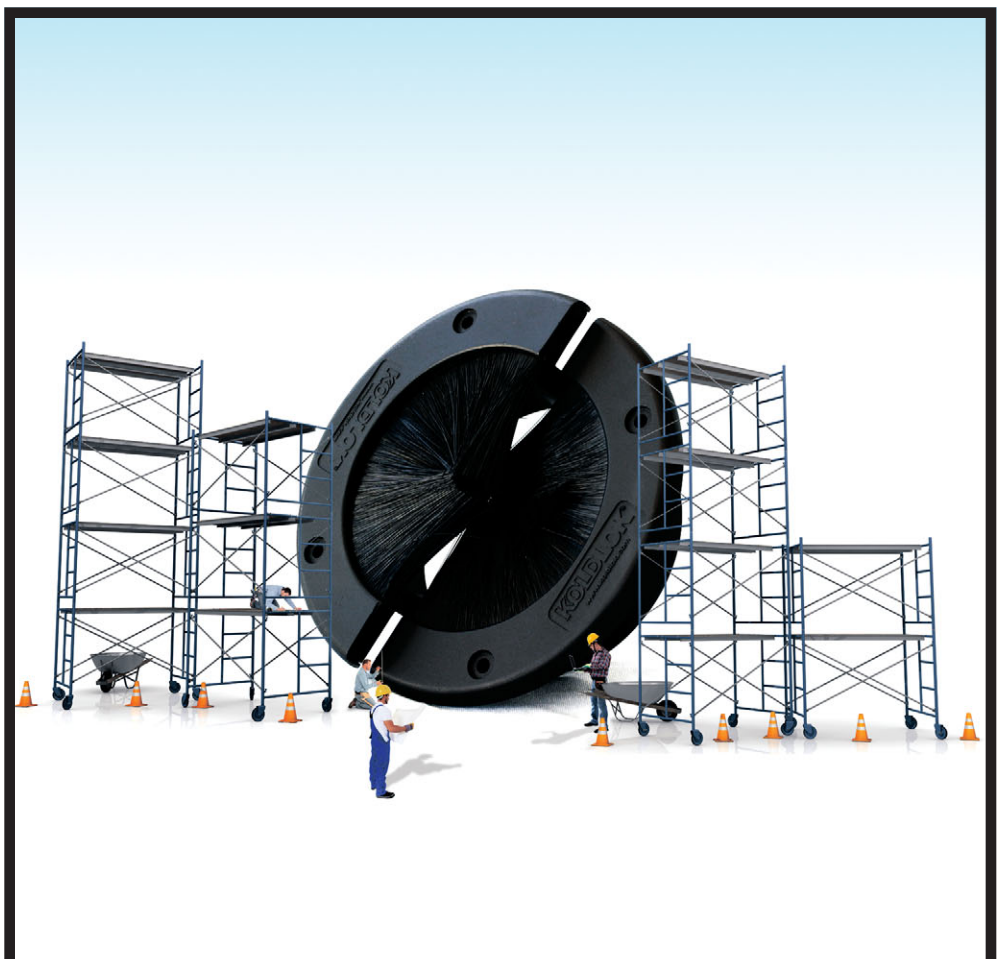

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STATS & FACTS

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PC Market Sees Sluggish Growth In Third Quarter . . .

PC manufacturers closed their books on a disappointing third quarter, which saw growth in the global PC market of only 3.2%, according to Gartner. Earlier in the year, analysts had predicted 5.1% growth in shipments. This followed slow second quarter growth of only 2.3%, compared to the 6.7% increase Gartner expected. HP held on to its No. 1 spot in the market during the third quarter, with a 17.7% market share. Lenovo knocked Dell from second place to third, followed by Acer in fourth and Asus in fifth.

91.8 million:
total worldwide PC shipments during the third quarter

85.2 million:
total worldwide PC shipments during the second quarter

. . . While Demand For Tablets Soars

Analysts are attributing the weakened demand that ails the PC industry partly to increased popularity of tablets and other mobile devices. Demand for tablets has increased so much that research firm IDC revised its tablet shipments forecast for 2011. The company now expects shipments of 62.5 million tablets this year, up from its earlier forecast of 53.5 million.

13.6 million:
number of tablets shipped during the second quarter

88.9%:
increase in tablet shipments from the first to second quarters

303.8%:
increase in tablet shipments from Q2 2010 to Q2 2011

9.3 million:
number of iPads sold during the second quarter

Apple Reports Increased Sales & Profits, Yet Misses Analyst Expectations

Apple recently announced its financial results for the fiscal fourth quarter; although there was growth year over year for the company, the results were below Wall Street analysts' expectations. The company reported fourth quarter revenue of $28.27 billion and a net profit of $6.62 billion for the quarter, slightly less than the predicted $29.4 billion. Apple shares fell 5.8% the day following the announcement. Analysts now blame the drop in shares on Apple's later-than-expected release of the iPhone 4S, which was much anticipated with high expectations from both analysts and consumers. However, Apple also announced increased growth in unit sales for its iPhone and iPad devices—posting a 21% and 166% increase, respectively, from one year ago.

Intel Sees Overall Growth While Atom Sales Drop

Intel reported a $3.7 billion profit on a non-GAAP basis for the third quarter 2011, making a gain of 24% year over year. Earnings per share were above analyst expectations. Intel's revenue also exceeded previous estimations, reaching $14.3 billion for the quarter, again on a non-GAAP basis. Intel's PC Client Group and Data Center Group both showed strong gains, with a 22% and 15% gain in revenue, respectively. However, Intel's Atom processor sales declined 32% compared to last year, reaching a revenue of $269 million for the chipset. According to analysts, the drop in Atom sales is mostly due to the weak demand for PCs and netbooks.

Nokia Exceeds Expectations, But Still Struggles Through Transition

Thanks to strong phone sales, Nokia was able to beat analyst expectations in the third quarter. The company posted $12.2 billion in revenue for the third quarter, just slightly above analyst forecasts of $12.16 billion. Analysts had also estimated a loss of 2 cents per share, yet the company saw earnings of 4 cents per share. Although the company experienced a relatively successful third quarter report compared to previous forecasts, Nokia has experienced a loss in revenue and total mobile device shipments year over year. Nokia is currently in the transition phase of moving its devices to Microsoft's Windows Phone operating system.

Oracle Buys Endeca

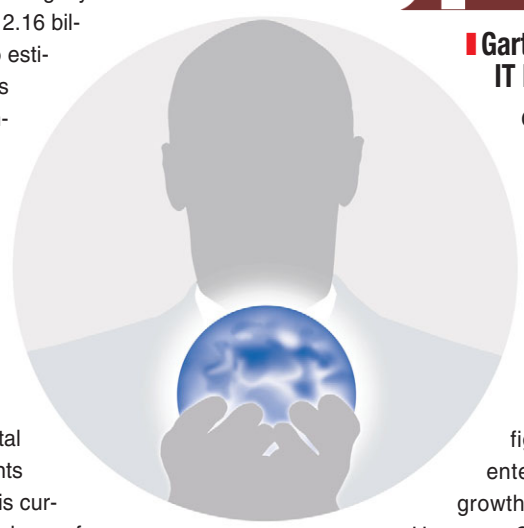
Oracle announced it will acquire Endeca Technologies in order to boost its Big Data managing and analyzing offerings. Endeca software targets unstructured data management, Web commerce, and business intelligence. Endeca's technologies include InFront CEM, a customer experience management solution; Latitude, an analytic application; and MDEX, which processes unstructured information from various sources. Endeca currently boasts 600 customers including Walmart and Toyota. The companies did not release the financial details of the deal, which is expected to be finalized before the end of the year. This acquisition comes after a similar merging at a rival firm—HP's recent $10.3 billion purchase of Autonomy.

BlackBerry Enterprise Users Not Satisfied

According to a survey by Enterprise Management Associates, more than 30% of enterprise users of BlackBerry devices expect to transfer to a different device next year. The survey found that BlackBerry users are the most dissatisfied with their device; 11% of BlackBerry users are completely dissatisfied compared to 0% dissatisfied with their Android device. Only 16% of BlackBerry enterprise users said they are completely satisfied with their device. Although RIM's current share in the enterprise market is 52%, EMA expects this share to fall due to more enterprises allowing the end user to choose their device, a lack of available applications on BlackBerry devices, and delayed timetables for BlackBerry OS updates.

Gartner Releases List For Top 10 Enterprise Technologies

Gartner released its top 10 list of strategic technologies for enterprises in 2012. First on the list, Gartner recommends IT address the rise of media tablets in use in the enterprise, as well as the use of employee-owned devices in the workplace. Gartner also addresses user interface changes that are much more mobile-centric; context-aware, social user experiences that are continually developing; the expansion of the Internet; the development of mobile app stores and markets; the growth of analytics software; and the implementation of new technologies to accommodate Big Data. Other technologies on the list include in-memory computing, new low-energy server systems, and cloud computing services.



Gartner Outlines IT Predictions

Gartner predictions say total IT spending will reach $2.7 trillion worldwide in 2012, a 3.9% rise compared to 2011. IT spending figures for 2011 reached $2.6 trillion, a 5.9% increase from 2010 figures, which means enterprise IT spending growth is actually slowing. However, Gartner analysts say enterprises will continue to invest in IT, as the company revealed that two-thirds of CEOs stated IT will make a greater contribution to their industry over the next 10 years vs. previous decades. The change in IT, according to Gartner, will rely on four "forces," including cloud computing, social computing, the rise in information, and the shift to mobile computing.

More Mobile Users Accessing Social Networks

A comScore study revealed the number of Americans accessing social networking sites increased by 37% compared to last year, and 72.2 million Americans accessed social networking sites on their mobile devices within the last year. Nearly 40 million Americans access such sites from their mobile devices on a daily basis, according to the study. The number of Facebook users has more than doubled over the past year, and Twitter and LinkedIn experienced even greater growth in the past 12 months. Facebook continues to hold the top spot for the most popular mobile social networking site with 57 million mobile users.

Report Reveals PC Reliability

According to Rescuecom's Computer Reliability Report for the second quarter 2011, Lenovo was ranked as the most reliable PC manufacturer. Asus had previously maintained the No. 2 spot, but fell to fifth place, tying with Sony. The current second most reliable manufacturer is Toshiba (which was the only company to increase its ranking), followed by Apple at No. 3 and HP/Compaq in the No. 4 slot. HP/Compaq maintains the largest market share, followed by Dell, a company that does not make the list of top five most reliable manufacturers. The levels of reliability are measured by hardware dependability and customer-requested support levels.

IBM Misses Revenue Projections, Earnings Remain High

Despite IBM's third-quarter 7% earnings increase, shares fell after the company didn't quite reach its forecasted sales goal. IBM reported $26.2 billion in revenue in the third quarter, with a profit of $3.8 billion. Although a small gap, the company fell below analyst estimations of $26.3 billion for the quarter, leading to a 4% drop in shares after the announcement. Sectors that fared well in the third quarter include IBM's software business and services business. IBM said that by 2015, the company hopes to gain earnings of $20 per share—a significant increase compared to this quarter's earnings projection of $13.35 per share.

Apple iPhone 4S Sales Surpass 4 Million

After Apple announced the company had pre-sold more than 1 million iPhone 4S devices on the first day the device was made available for pre-order, the company revealed that more than 4 million new devices were sold in the first three days on the market. Sprint was added to the short list of carriers offering the iPhone, and Verizon and AT&T continue to offer iPhones on their networks. The iPhone 4S is available in the United States, the UK, Australia, Canada, France, Germany, and Japan, with 22 more countries expected to be added to the list by the end of October. The smartphone is available in 16GB and 64GB versions.

Rising Revenue For Social Media Market

Gartner released its forecast for global social media revenue and revealed social media revenue has increased just over 41% compared to last year. By the end of 2011, the research firm predicts that social media revenue will reach $10.3 billion, compared to last year's $7.3 billion. Gartner said advertising has been the main contributor to social media revenue and will continue to be in the future. Total ad revenue for social media is expected to reach $5.5 billion this year. The firm expects global revenue overall for this market to reach $14.9 billion by 2012 and $29.1 billion in 2015.

Broadband Coalition Formed

Tech companies and nonprofits have joined together to promote widespread broadband adoption in the United States. The coalition formed the Connect to Compete initiative with support from many U.S. companies and nonprofits, both in and out of the technology sector, including Microsoft, Best Buy, Monster.com, and The Boys and Girls Club of America. Pew Research Center surveys have revealed that one-third of all Americans do not have broadband Internet in their homes, according to the organization. The program aims to show the benefits of broadband and train people in computer skills online and in person. Connect to Compete's initial programs will begin in the spring of 2012.

Government Releases Updated Data Center Consolidation Plans

The federal government recently released an initial statement declaring its intent to drastically reduce the number of data centers used for government purposes by 2015. Updated plans have been announced for 24 of the federal agencies planning to consolidate their facilities. The Department of Interior is taking a drastic approach, planning to cut data centers 45% by 2015. The Department of Homeland Security announced it plans to take the department's 43 data centers down to two data centers by the end of 2015. The Department of Defense is expected to make the most cuts, but has yet to release its plan publicly.

GAO Reviews DHS Policies, Finds Executive Oversight

The U.S. Government Accountability Office revealed in a recent report that the U.S. Department of Homeland Security may be putting sensitive personal information at risk because of its loose review process for its own data-mining systems. Data mining is used by the DHS to detect and prevent terrorist threats, yet the GAO found that the proper evaluation framework was not in place in at least three of its component organizations. The inconsistency could lead to exposed internal data, according to the GAO. The organization recommends agency policies ensure organizational competence, evaluate a system's effectiveness and privacy protection, and have appropriate levels of transparency.

DoD, TRICARE Face Lawsuit After Information Breach

The U.S. Department of Defense and the TRICARE healthcare system face a $4.9 billion lawsuit after a data breach exposed personal information of active and retired military personnel and their families. TRICARE disclosed the breach in September, saying computer backup tapes had been stolen. Four people, including three family members of a war veteran and a separate Air Force veteran, filed the lawsuit claiming TRICARE did not take the appropriate measures to insure patient privacy was protected, violating the Privacy Act of 1974. The plaintiffs seek $1,000 per each individual affected by the breach, which amounts to 4.9 million people in total.

Web Sites Leaking Personal Info

A study from Stanford University found that many top Web sites share names, email addresses, and other personal information with third-party advertisers or data-collection companies without informing users. On 185 heavily visited sites, consumers' user names or user IDs were shared with other Web sites 61% of the time, the study found. Some sites leak user names to ad companies by including them in referrer headers, and others share personal information directly. For example, signing up at Photobucket sent a user name to 31 other companies, the study found. Viewing an ad on HomeDepot.com sent the user's first name and email address to 13 companies.

PHOTO LISTINGS

The *Processor* Photo Listings section includes brief overviews of data center products.
All products listed have been released recently, so use this section to get up to date with what's new on the market and to find products you need.

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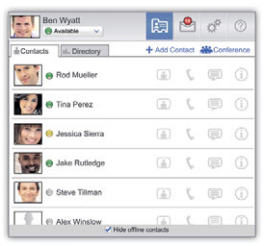

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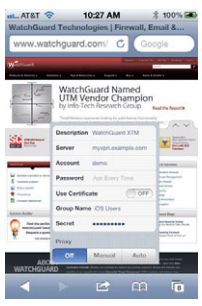

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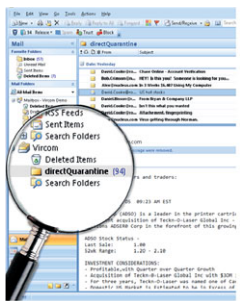

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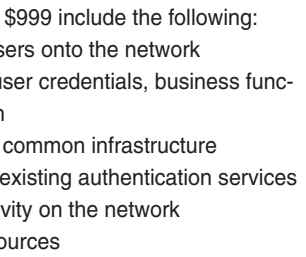

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Identifying The IT Skills You Need Now

How To Equip Yourself & Your Employees For Daily Data Center Workflows

It's no mystery that the skills required to work in IT evolve rapidly. That's why you can't rely on the base knowledge you absorbed in college or expect to develop better management skills without some intentionality. Proficiency is a basic requirement; practical experience is what companies really want.

Data centers need workers who are able to learn and acquire new skill sets as the industry changes, according to Jerry Stenzel, senior product support manager at Help/Systems (www.helpsystems.com) and Skybot Software (www.skybotsoftware.com). "They should be task-oriented in a fast-paced environment, with excellent customer service skills," Stenzel says.

We've outlined some of the skills, goals, and opportunities that IT employees and decision makers can pursue now and down the road.

Be A Master Of Many Trades

Every corporate position requires the ability to multitask, but an IT employee—particularly the executive—must be self-motivated, committed, and keep a cool head within the behind-the-scenes chaos. You can anticipate responding to colleagues' hardware service requests, rolling out new software platforms, and testing your environmental monitoring equipment all in the same morning.

"The data center manager must monitor all facilities, coordinate space planning and movement of equipment, and manage the operational staff in a multiple shift or 24/7 coverage period," says Mary Pearsall, client service and delivery vice president at Signature Technology Group (www.signaturetechnology.com). "Good communication skills are important in this role which requires continuous communication and planning with customers, upper-level managers, vendors, and employees."

In order to prepare for disasters in the moment, as well as recovery procedures, IT administrators can't afford miscommunication. This is where real-world experience makes or breaks the outcome of unpredictable scenarios.

Tim Woodfield, director of global support at Help/Systems and Skybot Software, says companies rely on the IT department for their day-to-day operations. "If the who, what, where, and when aren't clear in the data center, the company is sailing a burning ship. The quickest path to burnout is running perpetual fire drills," Woodfield adds.

Lead Projects

You don't have to be a manager to manage a project. In many cases, the best ROI for the enterprise results from proactive employees spearheading a job and rallying the data center troops. This requires the ability to apply business analysis skills and identify the ways in which colleagues work efficiently.

According to Pearsall, "Additional skills that an IT data center manager looks for in employees include professionalism, a sense of urgency, commitment to following best practices, and willingness to continue a technical education through training and achievement of certifications."

Pearsall explains that PMP (Project Management Professional) and management training courses will provide additional avenues into leadership roles.

Regardless of the type of project you're overseeing, Stenzel says it's important to keep your staff engaged, not exhausted. "If the team doesn't care, they won't see how they impact the business."

Get Certified

Acquiring a certification provides you with credentials that employers won't simply shrug off when they're perusing your résumé. Consider certifications that are transferable instead of vendor-specific training that might render your skills inapplicable when you transition to a new company.

"Each company will have its own certifications and skill requirements, but router certification and MCSE (Microsoft Certified Systems Engineer) are a must," says Woodfield. More important is an understanding of the company's systems and processes. Woodfield says a company should know what it needs to automate and how to do it without causing major delays during implementation or blowing the budget.

Specifically, Pearsall offers a list of certifications that are in demand in the current job market: CCNP (Cisco Certified Network Professional), CCIE (Cisco Certified Internetwork Expert), CompTIA A+, OEM (Original Equipment Manufacturer) server certifications, and Microsoft certifications such as MCSE and PMP.

Sharpen Security Skills

Malicious attacks and corporate intrusion through the network will always be the thorn in a business' side, but if you're an IT worker that knows how to monitor and mitigate database or wireless security issues, then there's a place for you in practically every medium-sized business or enterprise. Take the time to hone your skills in some areas, such as vulnerability assessment, encryption, data loss prevention, incident analysis, compliance, and Web content filtering. P

Key Points

- IT professionals shouldn't rely only on their information technology skills. The ability to organize objectives, delegate tasks, and communicate effectively are just as valuable.
- Leading an IT team well means being a proactive project manager and working cohesively with other departments.
- Don't underestimate the importance of a certification, but choose a vendor neutral training program, if possible.

Future Career Skill: Plan Ahead

Those interested in laying out a career path may heed the sage advice of two industry experts who encourage you to create opportunities and never stop learning.

According to Mary Pearsall, client service and delivery vice president at Signature Technology Group (www.signaturetechnology.com), "Career planning and development is important at every level during a career. As a data center manager, development of a five-year career plan including goals and objectives is imperative to reach the next level in a career. Five to 10 years' data center experience, along with technical certifications such as ITIL (Information Technology Infrastructure Library), PMP (Project Management Professional), and leadership training will increase the opportunities for potential career advancement."

Tim Woodfield, director of global support, and Jerry Stenzel, senior product support manager at Help/Systems (www.helpsystems.com) and Skybot Software (www.skybotsoftware.com), offer these recommendations: "Like their staff, IT managers should be perpetual learners. They need to stay hungry for new solutions and be alert to changes in the industry. IT managers need to identify their weaknesses, in addition to their strengths. Once you identify the holes, you choose the right team members to fill them."

News

IT Trends Survey Highlights Growing Use Of Offshore Outsourcing

The Society for Information Management has completed its annual survey of IT budgets and technology trends, and one of the key findings is that the majority of companies surveyed embrace outsourcing within their enterprises. Specifically, 65% of the CIOs and IT execs polled across 275 companies said that they currently outsource one or more aspects of their businesses. Of those, about 25% said that they used offshore services to run existing systems applications, and 20% used offshore services to manage their infrastructures.

The survey also revealed where outsourcing is concentrated worldwide. India tops the list with 58% of the outsourced processes. China is next, with 10%, followed by Mexico at 7% and the Western European Union at 6%. Rounding out the list are the Caribbean, the Philippines, and Eastern EU with 4% apiece, and Russia and Brazil with 3% each. According to Professor Jerry Luftman of the Stevens Institute of Technology, who oversaw the study, India is the dominant outsourcing entity because it has the largest outsourcing companies in the world, and those companies' costs are some of the lowest. However, Luftman says costs are converging, and he predicts that by the 2020s, India's rates will be close to those of the United States.

Other Findings

The survey found that IT budgets are holding steady, with 83% of respondents saying this year's IT budgets were greater than or equal to the previous year; 85% predicted the same for next year. Surprisingly, few of the IT executives polled are planning to devote any appreciable budgetary allotments to external or internal cloud computing. Spending is still low, with enterprises putting an average of 6% of their budgets in internal clouds and 5% on external. Luftman was not at all surprised by these numbers, saying that everyone is talking about cloud computing but not necessarily investing in it. It's still new, he says, and people need more time to decide.

As for IT priorities, business alignment was the top concern, followed by business agility, business process management, IT strategic planning, IT reliability and efficiency, enterprise architecture, security, revenue-generating IT innovations, and IT cost reduction. The lesson here for enterprises, according to Luftman, is that IT must "work closely with their business partners to identify opportunities to quickly leverage IT for demonstrable value."

Leasing Data Center Space

Does It Really Make Sense?

The reasons an SME might consider moving a portion or even all of its data center equipment to an offsite, shared data center operated by a colocation provider are fairly obvious. Access to current and future power, cooling, bandwidth, security, and hardware needs all make the list, as do compliance, managed services, uptime, latency, and redundancy. Despite the benefits, what's still not always clear for some SMEs is whether entering a lease with a colocation provider actually makes sense.

Sense & Sensibility

According to Daniel Golding, vice president and general manager of RagingWire (www.ragingwire.com), colocation makes sense because it's difficult for SMEs to reach economies of scale with their own data centers until they reach a certain size and capacity—often larger than is feasible for a small to midsized facility. "Even then, it's very hard to reach the economies of scale you can get in a major colocation facility," Golding says. "I think financially it's very difficult to make the case that you should build your own data center." He adds that this is only addressing the data center side. "On the network side, most colocation data centers are much better connected through their networks than an enterprise data center," he says. "You can save a considerable amount of money just on the carrier side."

Clive Longbottom, service director for business process facilitation at Quocirca (www.quocirca.com), says that for SMEs needing proper facilities to house an "IT estate," a colocation provider makes far more sense than a build approach. "The pace of change in facility design and IT estate is too fast for any facility to last more than about seven years, and with a base cost of around $5 million to $10 million, this is way beyond the capabilities of any SMB," he says. "Even a server room is probably not enough for an SMB these days."

Considering that an SME typically has enough business-critical information being stored that if the facility experienced a failure, business costs and financial penalties would put the company out of business, moving to a "fully managed facility in which an SMB can house its IT assets in a secure and safe manner makes a lot of sense," Longbottom says. For SMEs deciding that placing IT equipment in their own buildings isn't the best option, "The question then becomes, 'Should we own the equipment at all?' If no, then hosting is the answer. If yes, then colocation is the answer," Longbottom says.

Jordan Jacobs, director of corporate strategy at Phoenix NAP (www.phoenixnap.com), says colocation is ideal for the majority of SMEs due to the vast range of options available for businesses of any size to meet their requirements while maintaining a sense of security in a data center. Types of SMEs successfully using colocation spaces include those offering hosting solutions and educational and financial organizations, he says.

Availability

Currently, the availability of colocation space doesn't appear to be a significant problem for SMEs. A bigger problem may be the lack of premier colocation spaces and a dearth of spaces in non-urban areas.

"I don't feel there's a lack of supply," says Jim Kerrigan, executive vice president and director of the National Data Center Group at Grubb & Ellis. "I think there are certain markets underbuilt and certain markets overbuilt," but overall availability is a market-by-market situation, he says. "You may have a surplus of supply in Santa Clara but a drought in supply in Little Rock, Ark." More troublesome to Kerrigan are second- or third-tier markets into which nobody has really put the time or effort. Thus, a healthcare provider mandated to meet certain data center requirements may have trouble meeting those requirements in certain areas due to a lack of colocation resources, he says.

Jacobs says there are many colocation options available, but the number of premier data centers remains very limited. "Although all data centers appear to offer the same services, few stand out in terms of meeting high levels of security or are backed by continuous support, redundancy, and uptime," he says.

Colocation Considerations

For every factor leading SMEs to consider colocation, there are seemingly as many factors that SMEs should consider when comparing providers. Price, geographical location, historical performance, SLAs, reliability, cross-connects, and standards and certifications all rate highly. "Certifications and audits are established for a reason," Jacobs says. "Obtaining those specific certifications and audits means a colocation provider has gone beyond the standard practice to provide clients the peace of mind they are seeking in a data center."

Kerrigan considers a provider's reliability of chief concern. For example, when negotiating a lease, he says, ask what happens if the landlord suffers downtime. "What happens with the tenant? How much money will they receive, or how much free rent will they receive in the event that there is an incident? And then the question is, 'How reliable is this operator in fixing incidents?'" Kerrigan says.

Golding suggests that SMEs look back in the past three years and see how much downtime that data center has had. "There's always SLAs given in this sector, but SLAs aren't guarantees of performance, despite what people think," he says. "Only past performance is an indicator of future performance, not SLAs."

Geographically, the colocation's physical location can determine whether prices are charged by the square foot or by energy unit used. Location also influences latency, risk of a natural disaster, and proximity of the SME to its IT equipment.

Another important but understated consideration Longbottom points out is that because you don't own the facility, you also can't do much if you feel that it's getting a little behind the curve. Further, if an SME outgrows its room or cage in a provider's colocation space, "it may not be as easy as you thought to just grow the space," Longbottom says. "If the co-lo owner has allowed other cages to be constructed around you, you may need to do a full relocation of the cage to another area within the facility." P

Key Points

- Leasing colocation space typically makes more financial sense for SMEs than building new data center space.
- Carrier-wise, colocation spaces can save SMEs a considerable amount of money.
- Considerations for choosing a provider include the provider's location, its history of downtime, and whether it keeps up-to-date with technology.

Where's The Education?

A pressing concern that's unrelated to the availability of colocation data centers is the educational and marketing materials available to SMEs concerning colocation in general.

"The big co-lo players don't see enough return from these [materials], and the middle men aren't vocal enough in their marketing," says Clive Longbottom, service director for business process facilitation at Quocirca (www.quocirca.com). "Much greater education is needed across the market."

Daniel Golding, vice president and general manager at RagingWire (www.ragingwire.com), characterizes colocation education for SMEs, or specifically the lack of it, as a huge problem. "It's very tough to reach out to those folks," Golding says. "You can have a salesperson go around and never reach even a small percentage of that segment." Although there's greater general awareness about colocation among IT, he says, "a lot of IT folks seem scared of the data center, which is a shame. It's a very difficult challenge to overcome in getting that education out."

News

Former Motorola CEO Passes Away

Former Motorola CEO Robert W. Galvin has died. The son of the company's founder Paul V. Galvin, Robert Galvin was CEO during a time of significant technological innovations in communications. His tenure witnessed the development of the first radio to transmit words from the moon to Earth; the first portable cellphone; the first commercial cellphones; and developments in televisions, two-way radios, and laser barcode scanners. Galvin also oversaw the development of the Six Sigma process for quality management. Starting as a full-time employee at Motorola in 1944, he became president in 1956 and CEO in 1959, which lasted until 1986. His tenure saw sales grow from $290 million to $10.8 billion.

Avaya Hires New U.S. Channel Chief

Karl Soderlund, former senior vice president for worldwide sales and business development at Certeon, will be assuming the role of U.S. channel chief at Avaya. Soderlund is a former executive at HP ProCurve, departing in May 2010. He will answer to Steve Fitz, Avaya vice president of U.S. sales. Soderlund takes the place of Carol Giles Neslund who had been with Avaya for three years. Soderlund's hire comes as Avaya is attempting to go public again. The firm filed with the U.S. Securities and Exchange Commission in June with a planned IPO of $1 billion in common stock.

SSNs Leaked By Social Security Administration

Because of keying errors made by employees of the Social Security Administration, names, dates of birth, and Social Security numbers of thousands of Americans are leaked each year, according to a report by the Scripps Howard News Service. Since 1980, more than 400,000 living people have been mistakenly published in the Death Master File, resulting in people having their bank accounts frozen; job interviews refused; and loan, mortgage, and credit applications declined. The Scripps report, after examining three files within the Death Master List, found 31,931 Americans listed in error. SSA commissioner Michael Astrue claims no instances of fraud have resulted from the oversight.

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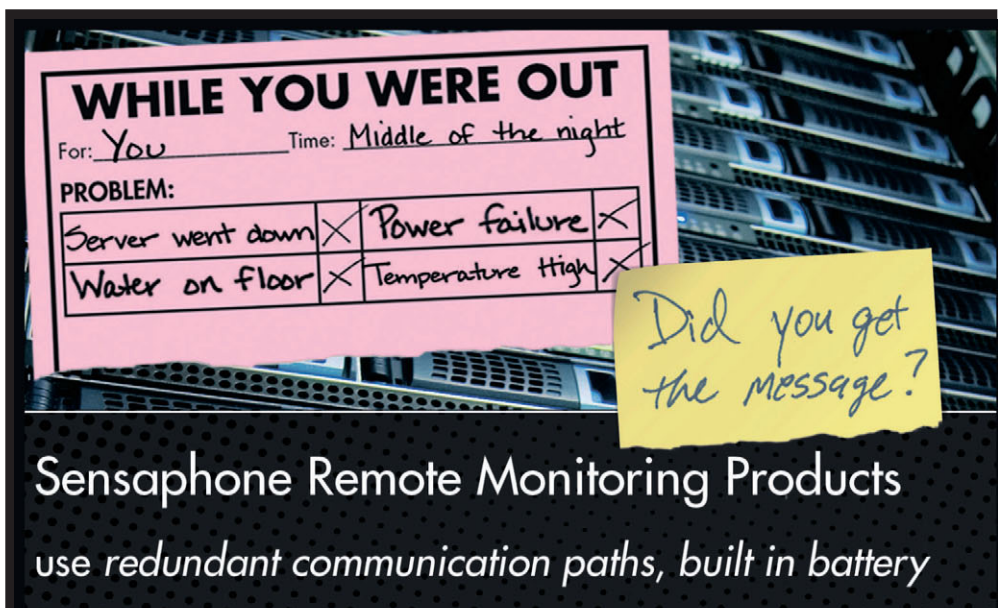

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A Look At ASHRAE Standard 90.1-2010

Guidelines To Help Your Data Center Keep Its Cool While Boosting Efficiency & Saving Money

The IT industry is by now well-versed in the importance of energy conservation. By optimizing the efficiency of data center operations, businesses can realize savings on energy used to not only power their servers and related gear, but also to keep them cool. They can also take real steps toward the reduction of greenhouse gas emissions from the burning of fossil fuels to make electricity.

Key Points

- The ASHRAE Standard 90.1 provides minimum requirements for energy-efficient building design.
- The latest update, Standard 90.1-2010, includes guidelines for data centers.
- Data centers can realize more than 30% power savings by conforming to the latest standard instead of adhering to the version from 2004.

These days, there's a lot of attention being paid to power-efficient system components, such as SSDs, power supplies, and CPUs with a high performance-per-watt rating. No less important from the perspective of ongoing cost of operation is the building itself. When designed to minimize the effects of outdoor weather on indoor temperatures and to utilize cost-effective heating and cooling systems with smart controls, the physical facility of a data center can make a huge difference in energy usage and, ultimately, a company's bottom line. To that end, ASHRAE (the American Society of Heating, Refrigerating, and Air-conditioning Engineers; www.ashrae.org) has developed standards to help data centers and other organizations operate at their most efficient.

A Guiding Hand

ASHRAE is a standards body that sets guidelines for best practices in building design in order to address energy efficiency issues. According to the organization's Web site, "ASHRAE fulfills its mission of advancing heating, ventilation, air conditioning, and refrigeration to serve humanity and promote a sustainable world through research, standards writing, publishing, and continuing education."

One standard that's of particular interest to data centers is ASHRAE's Standard 90.1, more precisely known as American National Standards Institute/ASHRAE/Illuminating Engineering Society of North America Standard 90.1-2010, Energy Standard for Buildings Except Low-Rise Residential Buildings. According to ASHRAE, Standard 90.1 "provides minimum requirements for the energy-efficient design of buildings," such as those used for businesses across the United States.

The New Standard

Standard 90.1 received an update in November of last year, its first major revision since 2004. "Standard 90.1-2010 expanded its scope to include process applications such as data centers for the first time," says 90.1 Project Committee Chair Steve Skalko.

"The first initiative included revisions to economizer (free-cooling) requirements and the addition of data center A/C unit minimum efficiencies," Skalko says. "In addition, the definition for computer rooms was revised and a new definition and exceptions for mission-critical facilities were added."

A few months later, ASHRAE made an announcement about the measured effects of the updated standard when implemented in actual constructions. "More than 30% energy savings can be achieved using the recently published 2010 version of Standard 90.1 vs. the 2004 standard," said the organization in a press release from its 2011 Winter Conference in January.

"Without plug loads, site energy savings are 32.6% and energy cost savings 30.1%," the group's announcement said. "Including plug loads, the site energy savings are estimated at 25.5% and energy cost savings 24%."

That's a substantial increase in efficiency, whether you're counting plug loads or not. Higher efficiency translates to lower costs of operation. It also means less impact on the environment resulting from the generation of the required energy. And in areas with histories of brownouts stemming from energy infrastructure that's inadequate for local needs during peak hours, data centers and offices that use less energy may score their companies some public relations points by their compliance with ASHRAE Standard 90.1-2010.

How They Did It

ASHRAE described some of the processes by which said energy savings were realized. "The scope was expanded so that [Standard] 90.1 covers receptacles and process loads, including data centers," the group said in its announcement. "This allows future addenda to the standard to address energy-consuming equipment and systems previously outside its scope."

Additions to the standard's building envelope guidelines take into account the reduction of thermal transfers that are radiative in nature through requirements related to high albedo roof materials that reflect solar rays. Convective heat transfers can also be minimized by insulating continuous air barriers now specified in the standard.

There are also a number of additions related to the reduction of a building's lighting power density. Exterior lighting now has a table in the standard that outlines five zones of different power densities. Inside a building, the standard now addresses daylighting requirements for particular spaces along with added occupant-sensing controls.

Additionally, Standard 90.1-2010 covers new mechanical ground. It requires additional energy-conserving controls and energy recovery in more situations. Economizers are now mandated in additional climates, too, and the Standard also notes the higher efficiencies of modern equipment.

Finally, ASHRAE's announcement says, "modeling requirements have been clarified and expanded so that building modelers can more accurately compare energy costs of their building project with an appropriate baseline building as defined by the standard."

Standard 90.1 On The Move

As technologies evolve, new paradigms emerge, and alternative building materials demonstrate their properties, work on Standard 90.1 continues. In other words, Standard 90.1 is a living document, not a static set of rules that would rapidly become obsolete. The committee's work on the standard is ongoing.

"This standard, in addition to other code intended ASHRAE standards, are under the continuous maintenance procedures of ASHRAE, and proposals have been submitted and are being reviewed by the 90.1 Project Committee," says 90.1 Project Committee Chair Steve Skalko.

"There is also an active working group within the Mechanical Subcommittee whose responsibility is to develop additional data center proposals for the 2013 standard and beyond and engage interested stakeholders in the discussions," Skalko says. "Those proposals, like others considered or developed by the 90.1 Project Committee, are expected to meet the cost [effectiveness] and energy savings criteria of 90.1."

News

New Technology Greatly Expands Lithium Battery Life

NEC announced it developed a technology that will enable lithium-ion batteries to last twice as long as currently possible. The improved performance is made possible through the use of an organic sulfur compound meant to lessen resistance in lithium batteries. A major use of the new technology will be in electrical power systems for buildings and homes. Smartphones and tablets could also benefit from the technology. During NEC testing, at 25 degrees Celsius the batteries held 83% of their original charge after 23,500 cycles, equaling four years of use. NEC estimates the new Li-Ion batteries could maintain up to 50% of their original charge for nearly 33 years.

Targusinfo Acquired By Neustar In $650 Million Deal

Targusinfo will soon be a part of Neustar in a $650 million deal in an effort to expand its real-time information and analytics services. Each of the companies manage databases that find, connect, and authenticate users across Internet and voice networks, including mobile, cable, or fixed-line networks. Targusinfo is best known for its caller ID service, but also offers other services, including the ability for companies to confirm links between mobile and landline phones, email, names, addresses, and IP address information. Neustar is involved with managing IP address and phone number databases. The acquisition will likely be finalized within the fourth quarter.

Using Social Media Difficult Adjustment For CMOs

Corporate executives realize they need to make better use of social media, but aren't sure how to go about it, according to a recent survey. IBM surveyed 1,700 CMOs (chief marketing officers) in 19 industries across the globe. The survey found that although 82% plan to increase the use of social media over the next few years, more than half of the participants don't know how to handle social media or the ensuing increase in collaboration with customers. The consensus seems to be that major change is necessary before expanding into the social media field. The survey also revealed that just 26% of CMOs track blogs, 42% track third-party reviews, and 48% track consumer reviews.

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Getting Started With SSDs

Solid-State Drives Can Boost Speed Where You Need It The Most

Solid-state drives are the Lamborghinis of the computing world: They're really fast, and their prices can give you sticker shock. But for business applications where there's no such thing as too much speed, SSDs can give an enterprise a critical edge wherever high performance is essential.

SSD Differences

Price comparisons fluctuate, but a good rule of thumb when budgeting for SSDs is that each will cost about 10 times as much as a hard disk drive of the same capacity. "The last time I did any serious checking, SSD was about $1 a gigabyte, and traditional hard drive space ran closer to 10 cents," says David Wilson, director of IT services at Vector CSP (www.vectorcsp.com).

That price premium buys several performance advantages over HDDs. For starters, there's zero time lost to drive spin-up, and they're much quicker at random access because there's no drive head scurrying around. They have lower power consumption—specs range between 50% and 90% less than HDDs. Additionally, they're immune to the effects of vibration, which can introduce latency to HDD performance. This makes SSDs better candidates for use in industrial settings and other environments where vibration is present.

According to IBM figures, an SSD system can deliver as many as 100 times the I/O processes of an HDD-based system. Unfortunately, you won't find this translating into a hundredfold performance bump.

"The problem, as it always is with computer technology, is that the transfer and processing speed can't currently utilize all of the extra speed available in the drives," Wilson says. He compares the discrepancy to a pipe connected to a large reservoir of water: Even at maximum water pressure, how much can flow through at once is still limited by the width of the pipe. "You can only move as much data as your system is designed to move at any given time, and you can only process as quickly as your processor can handle what is fed to it. The advantages of SSD will be more fully realized when the hardware they are attached to comes more in line with their speed."

Real-world gains of 50 to 100% faster response times are actually more realistic. However, as you find future ways to improve overall system performance, SSDs can more than keep up.

Bringing SSDs Into Service

Because of their price premium, enterprises will likely find it cost-prohibitive to transition to an all-SSD system. Cost will ultimately fall, of course, and SSDs are widely expected to eventually become the norm, but for now, the best use of SSDs is in key positions that will benefit most from their exponentially faster speeds.

"The only place I could see it is a system doing a lot of reads and writes, such as a database server recording thousands of transactions at a time," says Mike Oliveri, technology coordinator for a K-12 school district in Illinois.

Searches of vital databases and other vast data repositories should see a noticeable enhancement due to SSDs' high random access speed. Additionally, using them for e-commerce could help deliver speedier transactions to buyers, which typically generates higher customer satisfaction. Likewise, partnerships in which the faster key clients can access their data, the better served they are, may warrant using SSDs.

When assessing your own system in order to find the ideal places to swap out HDDs for SSDs, "I would primarily look at read/write operations of mission-critical servers," Oliveri says.

"If you had any system that was providing less data than its hardware was capable of managing, that would be the system to go with," Wilson adds. "If your processor and bus can move more data and your system requirement is maximum speed, that would be a good place to start."

Alleviate The Fear Of Failure

Consumer uses of solid-state storage—USB thumb drives, memory cards, etc.—have been plagued by one persistent criticism: that they have a relatively low number of write cycles before failure. Thus, they're impractical for data that's written frequently and in small chunks. This can leave even IT pros who haven't really looked at SSDs reluctant to take a chance on adopting the technology.

Fortunately, solid-state drives and camera flash cards are two very different animals. The number of write cycles on the latter is limited in ways that don't affect SSDs.

Vector CSP's Wilson explains the difference: "[SSDs] use processes that will write to a section of the drive until nearing the limit, then reallocate that segment as storage and begin writing and rewriting to the next. This is now sophisticated enough to be controlled by algorithms, and for most practical purposes is a nonissue. Drives used in a large array can last even longer." P

Key Points

- Although more expensive than HDDs, SSDs offer several benefits over mechanical hard drives, including no spin-up time and faster random access.
- The increased speed of SSDs will be most valuable in uses such as storing heavily accessed databases and in systems processing numerous read/write operations.
- The problem of limited write cycles of consumer flash RAM is alleviated in SSDs by sophisticated algorithms that govern how they write data.

> A good rule of thumb when budgeting for SSDs is that each will cost about 10 times as much as a hard disk drive of the same capacity. "The last time I did any serious checking, SSD was about $1 a gigabyte, and traditional hard drive space ran closer to 10 cents."
>
> *- Vector CSP's David Wilson*

Are SSDs Good Throughout Your Entire IT Career?

One of the touted benefits of SSDs is their projected life span: Even if they cost about 10 times what standard hard drives do, they may also last up to 10 times longer than HDDs. Calculations estimate life spans as long as 51 years before SSDs hit the brick wall of degradation. Of course, nobody will know for certain until those first SSDs start hitting their 50th birthdays.

However, this may also be one of those specs that sounds good while having little real-world relevance. "I can't imagine a system still using the same technology 50 years in the future," says David Wilson, director of IT services at Vector CSP (www.vectorcsp.com). "If they're good for 15, they'll still be much more reliable than traditional hard drives, and over that time will help to offset some of the cost difference."

News

Table Salt Boosts Data Storage Capabilities

Joel Yang, a researcher at the Institute of Materials Research and Engineering at Singapore's Agency for Science, Technology and Research, discovered a way to increase the density of data stored on a hard disk drive platter. Using common table salt, storage density can be increased by 5.3 times, supporting densities ranging from 1.9 to 3.3 terabits per inch. High-resolution e-beam lithography is used to create the nano-scale circuitry, with salt used to produce highly defined nanostructures without an expensive equipment upgrade. After this success, researchers are developing ways to push hard disk storage density even further.

HP May Not Spin Off PCs

HP is reconsidering its decision to spin off its PC division after an internal analysis found that the costs may outweigh the benefits, according to *The Wall Street Journal*. The analysis found that spinning off the PC business would reduce HP's buying power with component makers because it would lose economies of scale. This in turn would complicate HP's supply chain and reduce profits on certain products. Former CEO Leo Apotheker made the announcement that HP would spin off its PC business in August. Meg Whitman, HP's new CEO, said HP will make a final decision on the spinoff by the end of October.

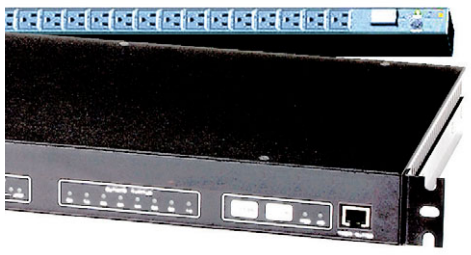
IBM To Buy Platform Computing

IBM plans to acquire Platform Computing, which makes management software that lets users create, integrate, and share managed computing environments such as clusters or grids. Platform will become part of IBM's Systems and Technology Group. IBM will integrate Platform's software with its high-performance systems to improve their ability to work with complex applications and large amounts of data. IBM says this will help it to better serve customers that rely on technical computing to analyze large data sets. IBM didn't disclose the terms of the deal, which is expected to close in the fourth quarter.

PC Market Struggles In Third Quarter

Worldwide PC shipments reached 91.8 million units in the third quarter, an increase of only 3.2% from the same quarter last year, according to Gartner. Earlier this year, Gartner predicted a third quarter increase in PC sales of 5.1%. PC market leader HP held a 17.7% market share during the third quarter. Lenovo's sales for the quarter passed Dell's, giving it second place in the PC market. Acer followed in fourth place, and Asus was fifth. Gartner says the PC market has been unusually weak for the past two quarters, partly because increased spending on tablets and smartphones has reduced demand for PCs.

BUYING GUIDE



Buying Tips: UPSes

Ultimately, the primary question IT should ask when buying UPSes is what level of protection is needed, says Brett Femrite, director of business development at Rackmount Solutions (www.rackmountsolutions.net). "A basic surge protector/suppressor will go a long way to protect your equipment from power spikes and surges, but in the case of power outages, you need to look at a UPS," he says. To that end, consider the following buying tips.

Top features to consider. Beyond a high efficiency rating (95% or greater), James Hall, marketing manager at Staco Energy Products (www.stacoenergy.com), says UPS systems should offer a high input power factor (greater than 99%), low input distortion (3% or less), easy installation and accessibility, and an external maintenance bypass switch. Other notable features include high-performance filtering to protect upstream power sources and dual inputs for the main and secondary emergency standby power. Hall advises to select a UPS that has sufficient capacity to handle the IT loads, adding that UPSes exceeding their capacities is one of the highest causes of data center downtime.

Capacity-wise, Femrite advises to purchase a unit that exceeds your total power requirement by 20 to 30%. "This not only ensures capacity coverage but will also allow some room for growth if/when you add additional pieces of equipment," he says. Where runtime is concerned, Femrite says, "It can be a great cost savings down the road if you factor in future expansion and buy a UPS that offers the ability to upgrade or add additional batteries if/when needed."

UPS types. The three primary UPS categories include standby, line-interactive, and online models, Femrite says, with different iterations existing within each category. Standby systems run power through surge suppression to the equipment; if there's a power outage, the UPS switches to battery backup power, reverting back to AC power when power returns. Line-interactive systems have built-in line-sensing abilities to regulate high or low voltage levels. An inverter switches on if there's a power loss, and the system switches to battery power. Online systems provide the highest protection level, Femrite says, as the inverter is online and operates continually to eliminate incoming surges and low and high voltage issues while delivering clean power to equipment.

Data center-grade features. For data center use, Hall says three-phase online double conversion (converts AC power to DC and then back to AC) systems offer the greatest value while also providing conditioned power to IT loads. "These UPS systems totally isolate the load from the primary AC line," he says. "Noise, sags, and swells never reach the load." Overall, Hall says obtaining the lowest TCO should be a primary objective. "This includes battery and other auxiliary hardware," he says. He advises to determine what the cost to acquire, operate, and maintain equipment will be over the equipment's lifetime. Additionally, key factors include high sustainability, space efficiency, ease of installation, integration with existing systems, scalability, and high reliability.

Size matters. In terms of data center-grade UPSes, Femrite cautions one size doesn't fit all. "It's more about design and configuration than type," he says. Budget, kW/MW capacity, availability requirements, and risk tolerance are other factors, as is recognizing that as the configuration gets higher on the availability/dependability scale, the associated costs also increase. "Redundancy, system efficiency, distributed architecture, maintenance, and fault tolerance (eliminating single points of failure) are all key considerations when evaluating data center-grade UPS solutions," Femrite says. Hall adds that SMEs should take transient loads into account when determining ideal UPS size.

Batteries. When factoring in batteries, Femrite says, "the solution you select should be able to notify you of any issues with battery performance or maintenance needs." Hall points out that battery life will degrade with age, even if they don't encounter lots of discharge cycles. Thus, if your minimum runtime requirements are critical, "the battery should be selected to provide some cushion so that after several years, minimum runtimes can still be achieved," Hall says. P

Buyers' Checklist

- ✔ What type of UPS system do you need?
- ✔ Is the UPS sized to properly handle the loads required?
- ✔ Are the necessary monitoring and management tools provided?
- ✔ Does the UPS offer sufficient runtime and capacity?
- ✔ Is the UPS backed by insurance or a guarantee?

Key Terms

Capacity:
The maximum amount of power a UPS can handle.

IGBT and DSP:
Short for insulate-gate bipolar transistors and digital signal processors, respectively, these components provide for true online double conversion in UPS systems.

Runtime:
The length of time a UPS will continue providing backup power in event of a power outage.

FEATURED PRODUCT

Block Zero-Day Attacks As They Happen

Network Box USA's Z-Scan Technology Is A Unique New Approach To Combatting Malware

Whitelisting is an alternative antivirus approach that some are touting as anti-malware's future. It essentially involves maintaining a list of all files permitted for installation on company computers as opposed to using a blacklist denoting files that aren't. Although Pierluigi Stella, CTO of Network Box USA (www.networkboxusa.com), believes whitelisting can be another weapon used against malware, he doesn't believe it's the ultimate weapon that many whitelisting companies are trying to portray it as.

"[Whitelisting] can't be the only tool, unless you think you can lock the computer down 100%," Stella says. Even then, what if the computer you're locking down is already infected and you do not know? "Some infections remain dormant for months," he says. "You lock it down, and now you have authorized that piece of malware, which is already installed on your computer, as a legitimate application." Stella also questions the notion of guaranteeing a locked-down computer is 100% clean. "No one can make that claim," he says.

Conversely, Stella says, Network Box's Z-Scan technology is highly adept at combatting malware. Z-Scan is a real-time, cloud-based antivirus solution that can address zero-day malware 4,200 times faster than traditional antivirus technologies, Network Box says. Standard technologies can take four to 12 hours to detect a threat; analyze it; and create, test, and deploy a signature, Stella says. Knowing this, hackers flood the Internet with what Stella calculates as 40,000 new pieces of malware daily, causing antivirus companies to fall behind malware writers by a large margin. By automating the creation and release of signatures, Z-Scan's detection-to-deploy process takes only seconds.

The premise behind Z-Scan is that "certain things are malicious in nature, and it's irrelevant what they truly are," Stella says. So, for example, if one of the 200,000-plus malware traps Network Box operates globally stops a new piece of code and the three antivirus techniques used to analyze it turn up nothing, the assumption is that the code is a zero-day attack no one has seen before. Z-Scan automatically creates a unique hash for the code that's distributed to Network Box's regional centers via cloud-based technology.

Network Box operates NOCs (Network Operation Centers) in more than 12 countries, and its global SOC (Security Operation Center) network oversees about 4,000 UTM devices sitting at customers' Internet gateway entry points. The 1,500-plus data networks that the devices are linked to are monitored in real time by security-trained analysts at each SOC. (The real-time Internet threats monitored by Network Box's Security Response Team are viewable at response.network-box.com).

Security Without Nagging

Another whitelisting negative Stella sees lies in the end user's experience. A whitelisting antivirus approach requires that companies know what is and what should be installed on each computer. Typically, however, employees have different roles and requirements necessitating different system installations, Stella says. A bank's tellers might have clone systems, but "as soon as you go up the chain, every person may have different ways of doing things, different needs, different expectations," Stella explains, meaning IT would need to keep a good list of authorized applications on each computer.

"From a user's standpoint, if you have used Windows Vista, you already know the problem. The world calls that 'security by nagging,' and I embrace that expression," Stella says. "How annoying would it be that every time you need to do something, a window pops up asking you to authorize that something?"

As an example of Z-Scan's effectiveness, consider a bank with a UTM device that receives the same malicious code as a malware trap for which antivirus finds nothing. The bank's device creates the same unique identifier and automatically queries a Network Box regional center with the hash. The center replies with a positive response and supplies a "confidence factor" signaling how many times the same code has been seen.

At this point, the bank box will block that code even though it does not know what type of malicious code it is because it was detected in a malware trap seconds earlier, Stella says. "The odds that [the code] would be legitimate are statistically zero," Stella says. "Attaching an official name to that piece of code is irrelevant. What is instead very relevant is that it needs to be stopped immediately, and that's the approach Z-Scan takes." P

NETWORK BOX USA Z-SCAN

(888) 315-8886
www.networkboxusa.com

A real-time, cloud-based antivirus solution designed to detect and block zero-day malware faster than traditional antivirus programs.

ZSCAN NETWORK BOX

PRODUCT SPOTLIGHT

UPSes

Active Power CleanSource UPS

Description

The CleanSource UPS from Active Power is a highly reliable, energy-efficient, battery-free UPS system that uses integrated flywheel technology. CleanSource UPS is designed to protect mission-critical data center operations from both short power disturbances and complete outages. With an energy efficiency of up to 98% and more than 77 million hours of runtime in the field to date, CleanSource creates a predictable, continuous power system designed to ride through power outages to keep critical operations up and running

- Designed to reduce TCO by 60%
- Battery-free
- Space-efficient
- 75% reduction in carbon emissions
- Continuous voltage regulation

Best For: Mission-critical data centers that need highly reliable power conditioning and protection.

Emerson Network Power Liebert APM

The Liebert APM from Emerson Network Power is a row-based, modular, transformer-free, online UPS system. The addition of internal FlexPower core hardware assemblies allow for quick power capacity increases, enabling capacity or redundancy expansion in 15kW increments up to 45kW or 90kW within one cabinet. FlexPower cores can be added or replaced without powering down connected equipment.

- FlexPower cores use distributed intelligence and scalable power in a common assembly
- Allows for configuration of a redundant power and control system matching the capacity of the protected equipment
- Up to 94% efficiency in standard mode at loads of 50 to 100%
- Unity power factor (kW=kVA) provides more real power capacity without power losses
- Available in 45kW and 90kW configurations

Best For: Raised or non-raised floor applications, small to medium-sized data centers, server rooms, production areas, labs and testing facilities, and telecommunications or process controls centers.

Price: Starts at $26,906

Emerson Network Power Liebert GXT3 UPS

The Liebert online GXT3 UPS from Emerson Network Power offers a compact design that keeps your critical loads running with up to six battery-backed outlets. Engineered for PCs, network workstations, servers, network closets, large network peripherals, and VoIP, the GXT3 supports both rack and tower configurations and preserves batteries through its broad input voltage window. Additionally, the GXT3 automatically discovers and meets both 60Hz and 50Hz line input frequencies and sends out advanced UPS status alerts through both automatic and manual battery tests.

- Just 2U high
- Available in VA ratings from 500 to 3,000 in 120V or 230V
- Rack or tower configurations
- Up to six battery-backed outlets
- Up to eight minutes of battery backup at full load
- SNMP and Web-based management options
- Input circuit breakers protect against and help recover from overloads

Best For: Companies looking for a compact UPS.

Price: Starts at $584

GE SG Series 10-750kVA UPS

Description

GE's SG Series 10-750kVA UPS is a three-phase unit that offers maximum output performance, efficiency, and functionality with a small footprint. The UPS operates in double-conversion mode; features true continuous online VFI (voltage and frequency independent) operation with integral full-load static switch and internal maintenance bypass; and includes eBoost, which cuts energy use without sacrificing reliability.

- Includes full 24/7 service team support for preventive and corrective services, training, and application expertise
- 99% operating efficiency
- Fused surge protection
- Front access makes maintenance and service simpler
- Superior battery management enhances battery lifetime
- Integrated intelligent energy management
- Redundant parallel architecture

Best For: Maximum protection for mission-critical processes.

Rackmount Solutions Minuteman Endeavor UPS Battery Backup

Rackmount Solutions' Minuteman Endeavor series of UPS battery backup products delivers an online uninterruptible power supply in a form factor that can be rack-mounted, placed on the floor as a tower, or installed in a cabinet. With a power factor of 0.8 watts and available with capacities up to 3kVA, the Minuteman Endeavor series features hot-swappable batteries, rapid battery recharging, and extended runtime using external battery packs, and it's also RoHS-compliant. Outlet receptacle control for noncritical load shedding is included. The Endeavor series also includes Minuteman SentryPlus monitoring and control software and a front panel display with status indications.

- Simultaneous RS-232, USB, and SNMP communications
- Three-year warranty with up to $200,000 equipment damage insurance
- Manual and automatic testing
- Harmonic distortion control
- Dedicated emergency power off port

Best For: Any situation where form factor flexibility is needed.

Price: Starts at $546.75

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Minuteman EnterprisePlus UPS Battery Backup

The Minuteman EnterprisePlus UPS Battery Backup is a family of line-interactive UPSes from Rackmount Solutions featuring a flexible form factor that can be mounted on the floor, in a crack, or in a cabinet. Other features include a 0.8 power factor; load shedding to extend the time it can support critical applications by rationing power from inactive devices; and simultaneous DB-9, USB, and SNMP communications.

- Independent battery bypass provides voltage regulation even when batteries are weak or dead
- Independent battery pack chargers
- Virtually unlimited battery pack support
- Minuteman SentryPlus monitoring and control software
- Front panel display
- Dedicated emergency power-off port

Best For: Any situation where form factor flexibility is needed.

Price: Starts at $390.15

Contact: (866) 207-6631 | www.rackmountsolutions.net

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Emerson Network Power Liebert NXL

The Liebert NXL combines reliable power protection and advanced technology into three-phase UPS systems for high-power applications. The Liebert NXL provides excellent dynamic performance, can handle an influx of adverse conditions, and provides computer-grade output to critical loads. Available in single- or multi-module systems in capacities of 250kVA through 1,100kVA at 480V, 575V, and 600V at 60Hz, the multi-module systems are available in 1+N (Distributed Static Switch) and N+1 (Centralized Static Switch) configurations.

- Add matching battery cabinets and a maintenance bypass cabinet for complete power solution
- Robust design enables operation at 100% load under such conditions as clogged air filters, high ambient temperature, fan failure, and low or high line conditions
- Battery cabinets available with factory-integrated Alber BDSi battery monitoring
- Lower TCO addressed by up to 94% efficiency in full isolation mode and up to 99% in high-efficiency mode.

Best For: Enterprise data centers, industrial process equipment, laboratories, or any application requiring high levels of power availability and computer-grade power quality.

GE GT Series

The transformerless GT Series (5 to 10kVA) offers a true online VFI (voltage and frequency independent), double-conversion range and comes in a tower and rack convertible design. The GT Series can be expanded to create up to 30kVA in a parallel system. Batteries are hot-swappable, and extended runtimes are available with matching battery cabinets. The GT Series can also handle cold starts and programmable load shutdowns with a remote power switch for separate sites. Multiple PDU options and backfeed protection are available.

- Single-phase output voltages of 120/208V
- 80 to 138V input voltage window
- Frequency conversion 60/50Hz
- SNMP can be added for network communication
- Prevents deep battery discharge at low loads

Best For: Data centers that need a flexible UPS option.

GE LP33 Series

The Digital Energy LP33 Series UPS (10 to 100kVA) offers various power protection features for mission-critical applications, including GE's Redundant Parallel Architecture technology that parallels up to four units. Operating in double-conversion mode, the LP33 Series offers true online VFI (voltage and frequency independent) operation and high-frequency Pulse Width Modulation IGBT digital control techniques for a quicker transient response and lower output distortion. Additionally, a transformerless design makes the UPS compact, lightweight, and quiet.

- Greater than 0.98 input power factor and less than 8% input THD distortion
- Up to 98% operating efficiency in ECO mode
- 54 to 66Hz input frequency and 208V
- LAN, modem, SNMP, RS-232, Modbus RTU, programmable alarm contacts, and TCP/IP connections provide for remote monitoring and management
- SBM (Superior Battery Management) technology helps to preserve battery life

Best For: Companies searching for a transformerless and energy-efficient three-phase solution.

Staco Energy Products FirstLine P 65-125kVA 480VAC UPS

With the addition of the FirstLine P 65kVA 480VAC UPS to Staco Energy Products' 80-125kVA UPS lineup, the company now offers three-phase UPSes for 65-125kVA applications. Up to 98% efficient, the devices use IGBT (insulated-gate bipolar transistor) and DSP (digital signal processor) control to produce true online double conversion with up to eight units in parallel for expandability and redundancy. FirstLine P boasts high efficiency and an impressive power factor, which translate into lower utility costs and a greener footprint. The units protect upstream power supply sources from harmonics and reactive power generated by the load.

- Dual Bus and Dynamic Dual Bus System configurations
- Hot-swappable
- Front, top, or bottom access for placing units against a wall
- Two-year onsite warranty
- Nationwide Service Program

Best For: Computer room and data center applications where affordability, efficiency, reliability, and flexibility are essential.

Contact: (866) 261-1191 | www.stacoenergy.com

Staco Energy Products FirstLine PL 10-100kVA 208VAC UPS

Staco Energy Products FirstLine PL UPS is a parallelable three-phase UPS meant for 10-100kVA applications. Up to four FirstLine PL units can be run in parallel, providing redundancy with no additional hardware. The units have efficiencies of up to 95% and feature a compact transformerless design that allows for internal batteries up to 30kVA. IGBT and digital signal processor control provides true online, double-conversion technology, while a user-friendly display boasts alarms and LED indicators for bypass, main line, battery powering the load, load on bypass, and normal output.

- Dynamic Dual Bus System configuration
- Space-efficient
- Matching extended battery and options cabinets
- Two-year onsite warranty
- Nationwide Service Program

Best For: Network closets, computer rooms, and small data center applications requiring a high level of available conditioned power.

Contact: (866) 261-1191 | www.stacoenergy.com

Staco Energy Products Unistar P Series 6-10kVA Rack & Tower UPS

Staco Energy Products UniStar P is an online, single-phase parallel redundant UPS available in 6kVA Rack/Universal and 6kVA, 8kVA, and 10kVA Tower models. The products are power- and runtime-scalable, up to 98% efficient, can be configured with up to four units in parallel, and are DSP-controlled. The units feature an LCD/LED mimic panel and easy-to-set user personalization, and they offer continuous power conditioning and smooth uninterrupted switching from utility to battery, handling wide fluctuations without going to battery. The units also have a very low rate of added harmonics, which protects system integrity.

- High input power factor and low current THD
- Flexible Rack/Universal and Tower models
- RS-232 port and optional communications slots
- Hot-swappable battery and matching external battery pack
- Industry-leading three-year warranty
- Nationwide Service Program

Best For: Network closets and small computer rooms requiring a high level of continuous available conditioned power.

Contact: (866) 261-1191 | www.stacoenergy.com

The BYOD Security Quandary

Managing The Risks Of Personally Owned Devices Is No Easy Task For IT

Smartphones and tablets are increasingly blurring the lines between consumer devices and business tools, and as more and more employees bring their personal devices into the workplace, where they are likely to use them to access sensitive company data, IT managers are faced with the decision of whether to outlaw personally owned devices or support them as part of a BYOD (bring your own device) strategy. Here is a closer look at how to manage the risks associated with a BYOD workplace.

Establish Policies

According to Brian Duckering, senior manager of the endpoint management and mobility group at Symantec (www.symantec.com), setting clear and effective policies, using mobile device management software, and educating users on security best practices can all help a company regulate personal devices used for work without stifling the productivity gains possible through BYOD.

However, Fred Kost, director of security solutions at Cisco (www.cisco.com), says that regulating personal devices without stifling technical agility and innovation is a tough tradeoff. Draconian measures will hamper the recruitment of employees, drive employees to try harder to work around any security controls, and may actually drive up costs for IT.

Additionally, an innovative technology company may have a completely different risk profile than a financial services company, Kost says; therefore, when developing your policies, it's important to consider industry-specific compliance regulations that could dictate how information is accessed or stored. "It is not one-size-fits-all when it comes to policy," he says.

"Some of the first steps to regulate devices is to set up a well-thought-out policy and make users aware of it, identify the risk profile and where in the business there may be lower thresholds for risk, and then use technology to manage the risk and enforce the policy," Kost says.

Educate Your Users

According to Kost, user education reinforces what devices can have access to the network, how those devices are provisioned, expectations for data protection and privacy, and the risks that users may be exposed to.

"IT should help users understand the need to click with caution, just like they do with PCs," Duckering says. "Opening emails and texts from unfamiliar senders on mobile devices is just as dangerous as doing so on PCs. Along with this, users should also avoid clicking on links in messages if at all possible."

BYOD users should also be advised to be aware of their surroundings when accessing sensitive information. "Whether entering passwords or viewing sensitive or confidential data, users should be cautious of who might be looking over their shoulder," Duckering says.

Finally, users need to know what to do if a device is lost or stolen. "IT should have processes in place to deactivate the device and protect its information from intrusion, and users should know who to contact to get those processes started," Duckering says.

Adopt Appropriate Controls

According to Duckering, there are a number of practical things enterprises should be doing to ensure the safety of sensitive corporate information being stored and used on personal devices.

"The first thing enterprises need to do is start focusing on protecting information as opposed to focusing solely on the devices where the information is accessed," Duckering says. "IT departments should take a step back and look at where the organization's information is being stored and should then protect those areas accordingly."

Duckering advises enterprises to use security software on the devices. "This will stop hackers and prevent cybercriminals from stealing information off the devices or gaining corporate network access through the device," he says.

He also recommends that companies should utilize encryption technologies on personally owned devices. "Encrypting this data is a must. For example, if a smartphone is lost and the SIM card stolen, the thief will not be able to access the data if the proper encryption technology is loaded on the device," he says.

Kost agrees and explains that the key steps an enterprise can take to secure data are "making sure that the device and data are protected by enabling device passwords, authenticating the device with a certificate or other user/device credential, and enabling remote wipe or erase capabilities in the event the device is lost or stolen."

Regulate Data Commingling

Duckering and Kost agree that the commingling of personal and company information on the same devices raises a number of privacy and corporate data security issues. "Obviously the overarching challenge is making sure the corporate data is not compromised because of the personal information," Duckering says.

Duckering points to two major issues, the first of which is that today's devices do not operate in a vacuum. Personal devices are almost always connected to multiple cloud-based services, some of which are enterprise-controlled and some—such as Web-based email or entertainment Web sites—that are not.

"It's possible to configure most modern devices to safely allow users to simultaneously synchronize their devices with both public and enterprise cloud services without risking data exposure," Duckering says. "However, often these services can also be easily abused by employees, resulting in the exposure of enterprise data on both unsanctioned employee devices as well as in public clouds."

Duckering's second issue is the problem of wiping data from personal devices. "When a device is lost or stolen, or when an employee leaves a company, the corporate information on that employee's device needs to be removed by the enterprise to prevent it from being compromised," he says. "The challenge is removing the sensitive corporate information while leaving the personal information untouched. Mobile device management solutions can help in this regard."

Kost adds that "if a device is lost or stolen, the company may have remote wipe capabilities, but users need to understand and likely agree ahead of time that their personal data could be wiped as well if the device is lost or stolen." P

Key Points

- Establishing strong, well-thought-out policies from the outset can help avoid future problems with BYOD strategies.
- Educating employees on the risks and policies associated with using their personally owned devices on the corporate network is key to avoiding security breaches.
- Commingling of personal and private data on personal devices should be controlled through detailed policies, established processes, and the appropriate blend of security technologies such as encryption.

Control Personal Device Access To The Internet

According to Fred Kost, director of security solutions at Cisco (www.cisco.com), it's wise for SMEs to control personally owned devices' access to the Internet.

"One common approach is to provide separate open Internet access to these devices so that users can use them in the workplace, connected to the Internet," Kost says. "In order to gain access to the company resources, these devices must authenticate and connect to the virtual private network (VPN) and come into the network as if coming from the outside. This provides a more consistent security policy and protections for the devices and the data."

Additionally, Kost says, "Some of the same technologies that are in use for wired access and wireless laptops can be used to control how these new mobile devices access the network."

News

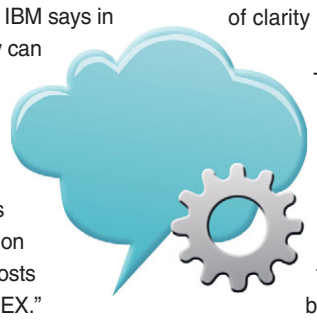
Survey Shows Cloud Is The Right Solution

The Carbon Disclosure Project released a study to highlight the sustainability and cost benefits associated with adopting cloud solutions. The study, "Cloud Computing: The IT Solution for the 21st Century," revealed executives are highly favorable of the cloud, largely due to potential cost savings. Firms looking at an internal private cloud anticipate 40 to 50% in cost reductions. The savings in carbon emissions by moving to the cloud are also significant.

The study, conducted by Verdantix and sponsored by AT&T, focused on 11 global firms that had already been using cloud solutions for the last two years, including Dell, Juniper Networks, IBM, and Boeing. If cloud adoption continues to grow as projected, the study predicts that U.S. businesses with revenues of $1 billion or more can save $12.3 billion each year economy-wide by 2020.

Execs See Several Benefits In The Cloud

Within the case studies reviewed in the study, executives listed cloud adoption advantages for their organizations, and among the top advantages were effective time to market, flexibility in computing capacity, significant cost savings, avoidance of expensive upfront costs, and increased automation. Richard Lechner of IBM says in the study, "Not only can firms perform more rapid application development, but a firm can also realize savings across the application life cycle, moving costs from CAPEX to OPEX."



These same firms also detailed any hesitations surrounding the cloud transition: feared security issues, reliability of service, fear of dependency upon a third party, and a certain lack of clarity surrounding the operations.

The cloud adoption forecast outlined in the study predicts that by 2020, 69% of infrastructure, platform, and software budgets will be allocated to cloud solutions at corporations with $1 billion-plus revenues. If this reallocation is realized, carbon emissions from these billion-dollar firms are estimated to be reduced by 85.7 million metric tons per year by 2020. So far in 2011, cloud usage has reduced CO_2 emissions by 5.7 million metric tons globally.

"The drivers for cloud computing can be summarized as cost, resiliency, and efficiency," says Juniper Networks' Dhritiman Dasgupta in the study. To realize the environmental benefits of the cloud, the study suggests enterprises develop an enterprise-wide strategy, identify non-business-critical applications, understand the existing IT model, and harmonize employee behavior.

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Government Data Center Consolidation

What To Expect When Data Centers Close

Some government agencies, including the U.S. Department of the Interior, have announced plans to consolidate their data centers and IT resources. The main reasons seem to point to the government's bottom line and an effort to eliminate waste. According to a report released by MeriTalk (sponsored by NetApp), federal agencies have the potential of cutting IT-related expenditures by $18.8 billion if they consolidate their data centers. Although consolidation looks good in the budget books, it will certainly impact government data centers and the services they offer. So what will be the end result of consolidation? And what will the reality look like?

Consolidate What?

Peggy Canale, government segment manager for Emerson Network Power's Avocent business (www.emersonnetworkpower.com), says federal agencies act autonomously, even though there are many applications that are consistent across the government. As a result, Canale says the mechanisms used for funding various agencies and their capital expenditures have forced the development of IT silos. She comments, "The administration seeks to reduce duplicative and complex systems, increase asset utilization, and bring federal IT on par with the private sector. Collectively, agencies are striving to close 800 data centers by 2015."

However, it is worth noting, says Canale, that the definition the government used to report the number of federal data centers actually includes what many in the industry would classify as computer rooms, server racks, and network closets. "That being said, the number of actual data centers is significantly smaller and is not out of control," she says.

According to Eitan Bremler, director of product marketing, virtualization, and cloud solutions at Radware (www.radware.com), organizations are implementing data center consolidation strategies in order to reduce costs and improve availability and resilience of their data centers. He explains, "Through the process of data center consolidation, organizations also take the opportunity to not only consolidate multiple data centers into fewer centers, but also to implement consolidation of different networking and server layers within the data center, such as the ADC (application delivery controller) layer."

Why Consolidate?

Canale says consolidation is useful because it makes the hundreds of thousands of diverse ICT (information communication technology) assets and applications hosted on them much easier to account for. She adds, "It also allows better economies of scale and pushes the data center into high-performance computing architecture to take advantage of assets. It provides a path to server, storage, and network reductions; increased use of virtualization; and perhaps most importantly, a significant reduction in energy consumption, real estate, software licenses, and manpower."

However, Canale says, shockingly, many agencies did not know how much or where their hardware and software resources were deployed. She notes, "The problem of not knowing what the data center infrastructure looks like is enormous. Without insight into the infrastructure, there is no way to be cloud-ready for agencies wishing to implement private or hybrid clouds. When the administration announced their second strategy, 'Cloud First,' federal agencies had to have an accurate accounting of resources." She says even for those not moving to cloud, consolidation offers the opportunity to reduce complexity by removing older generations of hardware.

Bremler says consolidation offers several benefits. "First, it helps reduce hardware and operational costs. Second, IT departments can use the savings to invest in new and robust data center technologies that will help improve data center reliability with resources concentrated on fewer centers. Last, the manageability of the data centers is improved since fewer locations and infrastructures have to be managed," he says.

Consolidation Impact

In Bremler's opinion, the impact will be felt in improved reliability of the data centers and services, but more interestingly, it will impact the technologies applied in data centers, especially through the consolidation of different data center layers. He adds, "This consolidation requires new technologies such as ADC consolidation and virtualization technologies or networking consolidation technologies. I believe we will start to see more virtualization technologies within the consolidated data centers."

For Canale, the federal government will need to update its IT infrastructures to handle the higher loads, and reliance on high availability architecture will increase. She says DCIM (data center infrastructure management) tools could help efficiently manage the assets, user requirements, energy loads, and virtualization.

Ultimately, however, Canale says if the consolidation effort is achieved as planned, the federal government will see better service in a more secure environment and will be able to provide more value for the American taxpayer. "Over time, the federal consolidation effort will help enable more private or hybrid cloud offerings," she says. "Additionally, some of the routine cross-government applications, like email, will move to public cloud offerings."

What To Expect

One of the Office of Management and Budget's goals, according to Canale, is to see server utilization move from 30% (which is typical of many agencies) to the 60 to 70% range. The other goals are to align federal technology with best practices from the private sector. But the problem, she says, is twofold: The budget crisis could reduce, delay, or outright cancel programs to modernize data centers, and the federal acquisition process is often at odds with timely best practices from the private sector.

Canale continues, "It is too early to tell the results of the consolidation efforts. However, recent survey results from federal IT executives indicate their doubt about the ability to meet the 800 data center consolidation goal. Per the request from the Office of Management and Budget, we will be able to see how agencies will integrate consolidation plans into their FY12 budget submission. However, it's possible that the end result could resemble commercial colocation data centers with many tenants, intra- and inter-agency, either leasing hardware and managed services or supplying their own and leveraging support infrastructure and services."

Bremler says overall, data center consolidation will drive a reduction in operational and capital costs and improve manageability of the center. He says in reality, the level of consolidation will determine how the new data center will look. He concludes, "As more and more consolidation and virtualization are implemented, we will see fewer physical hardware devices and much more virtualized devices." P

Key Points

- Organizations are implementing data center consolidation strategies in order to reduce costs and improve availability and resilience of their data centers.
- If the consolidation is achieved as planned, the federal government could see better service in a more secure environment and will be able to provide more value for the American taxpayer. It can also help enable more private or hybrid cloud offerings.
- The federal government will likely need to update its IT infrastructure to handle the higher loads. Expect reliance on high availability architecture to also increase.

Federal IT Knowledge

MeriTalk, the government information technology IT network, released a study on federal data center consolidation titled, "Measure to Manage II: Consolidation Crash Course."

The study, underwritten by NetApp, found the following:

- Only 23% of federal IT decision makers say that their IT departments can track full data center consolidation savings. That means 77% are limited in their ability to quantify and reinvest savings.
- 67% of respondents do not know average kilowatts per rack electricity usage across their data centers.
- 24% do not know their data storage efficiency.

News

Survey Reveals IT Workers' Take On Social Media In The Enterprise

According to a recent survey, 63% of IT professionals believe social networking poses a serious security risk to an enterprise, yet, surprisingly, just 29% have security controls to minimize such risk. More than half of these respondents reported an increase in the number of malware incidents because of social media use in the workplace. The Websense-sponsored "Global Survey on Social Media Risks" was conducted by Ponemon Institute and asked more than 4,000 IT workers about their views toward social networking in the workplace. Respondents were scattered across the globe—12 countries in total were involved, including Australia and several countries in North and South America, Europe, and Asia.

Business Opportunity vs. Risk

Although social media can be used in productive ways in the workplace, the survey shows it can also lead to unwanted threats and the possibility of diminished employee productivity. An overwhelming 89% of respondents reported a drop in productivity because of employees' social media use; 60% of employees reported using social media for 30 minutes or more for solely personal reasons. The United States was among the countries with the highest use of social media for personal use while at work.

According to survey results, 65% of the surveyed IT professionals said their enterprises either do not enforce acceptable use policies for social media use in the workplace or they are unsure of any policy in place. Reasons for lack of enforcement varied from insufficient resources to lack of governance and oversight.

The United States and the UK were among the countries that reported the greatest surge in social media-related malware incidents. Overall, 27% of survey respondents said malware increased more than 51% recently. The increase in malware places an increased need for ample security in the enterprise, yet more than one-quarter of respondents said secure Web gateways are not important to protect against such threats. Contrary to this belief, Websense says secure Web gateways with real-time content analysis and data loss prevention are the key to preventing these advanced malware attacks.

Tom Clare, Websense senior director of product marketing, said in a press release that this information shouldn't lead to blocking or ignoring the social media business opportunity; rather, "Organizations need to develop social media acceptable use policies, set appropriate quotas, and most importantly, use security that examines the content and context of social media sites in real time."

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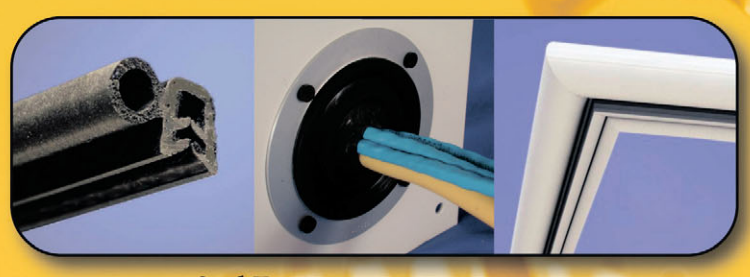

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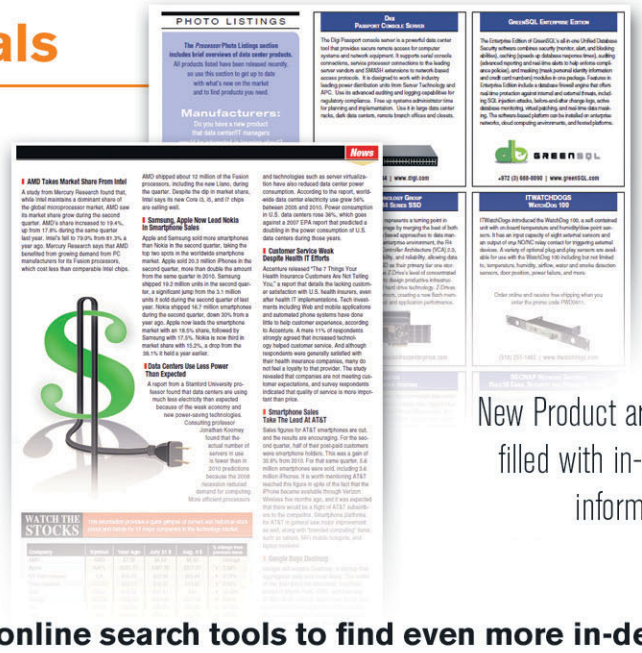

Quick rundowns of new data center-related products.

New Product articles filled with in-depth information.

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Key Points

- Master data management is a discipline that combines various data management tools to improve overall use and governance of data.
- Data management issues may not seem detrimental, but they can compound over time and prevent companies from reaching their business goals.
- MDM is still young and there will be many more improvements to the discipline in the future.

Master Data Management

MDM Improves The Administration & Consistency Of Company Data

***SMEs, and especially larger companies** within that segment, may find it difficult to manage their master data assets across all departments, offices, and branches. And it may sometimes seem impossible to make sure that data is consistent across the board so that everyone is working with the same information at all times. A new discipline called master data management, or MDM, was created in the past few years to alleviate these issues and make data management much easier.*

"[Master data management] is a technology-enabled discipline in which business and IT organizations work together to ensure the uniformity, accuracy, stewardship, semantic consistency, and accountability of the enterprise's official, shared master data assets," says Andrew White, vice president of research and MDM at research firm Gartner. "The purpose for why MDM is important is that it is a relatively new attempt at solving a very old problem: the lack of consistency in the core data that describes what an organization does."

White says that MDM is not just about managing data, but rather managing it so that it can be reused in a variety of ways to help increase value and performance.

A PACKAGE OF EXISTING TOOLS

At its core, MDM isn't composed of necessarily new or different solutions; instead, it is a combination of the best already-existing data management tools. These tools usually consist of collection, distribution, administration, and other solutions. The overall goal is to help show companies that there is a better way to manage and deploy data across an organization, even if they don't recognize the issue in the first place.

"Most don't realize they have the problem," White says. "However, symptoms abound. If users go to meetings and spend more time arguing about the source of the data used to make a decision and less time on the decision, it is very likely information governance is missing."

The main goal of MDM is to take separated data strands from different places, such as department-specific databases, and make sure that similar information is stored together so there is better data communication throughout the company and less of a chance for redundancy. MDM solutions and strategies ensure your data is working together efficiently and effectively.

SHOULD YOU INSTITUTE AN MDM PROGRAM?

Although White says that the problems associated with master data are not necessarily "fatal," he adds that "inconsistency is a chronic disease that can fester away for years and slowly limit an organization's ability to assure its desired business outcomes." And there is always room for improvement, so companies should make an effort to reach their full business potential by taking advantage of MDM. P

MDM Still Has Plenty Of Room To Grow

Remember that MDM, as it currently exists, isn't the end of the road. As with all technologies, this discipline will continue to change and grow, so you'll need to keep up with it by analyzing your data management weaknesses and taking advantage of new solutions that solve these problems and prevent new ones from cropping up.

White says it's important to view MDM as a governance tool that sets up a specific structure on how master data is gathered, used, and administered. Additionally, although the individual tools in MDM are very mature, the practice of using them all together as a collective solution is still young. It's crucial that companies set up MDM programs that fit their needs so they can be better prepared for the future.

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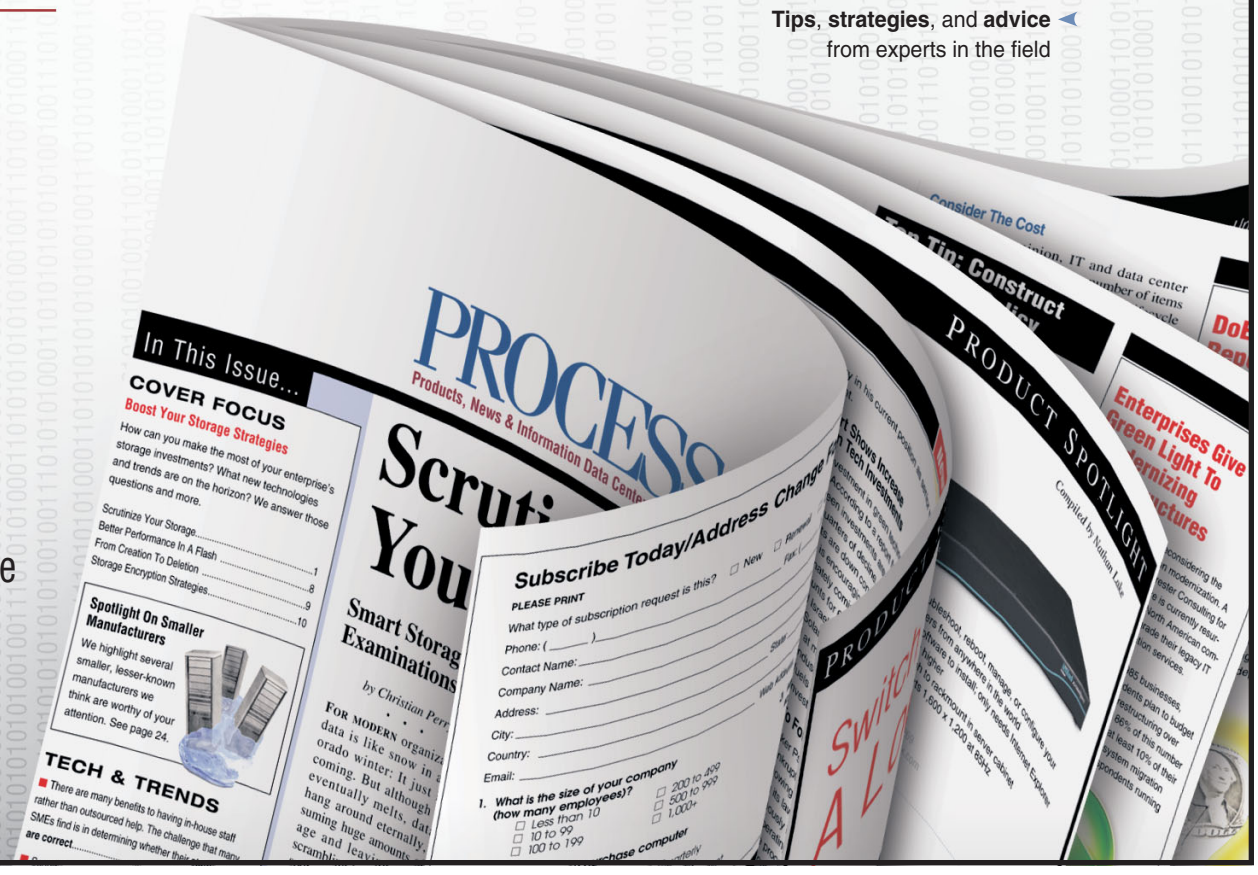


BUYING TIPS:

Data Center Cleaning Services

CLEANLINESS IS IMPORTANT, and never more so than when talking about your company's data center. As Rich Hill, president of Data Clean Corp. (www.dataclean.com), points out, "Application of ISO 14644-1, Class 8, and management of coarse and fine particles suggests that a data center should be as clean as possible." This means that any contracted cleaning service must be equipped to "remove visible contamination for aesthetic value and remove coarse and fine contamination, which, if disturbed, could reasonably contribute to excessive airborne contamination," Hill says.

Experience required. Not all cleaning is created equal. Although janitorial services may do an excellent job of keeping offices and workspaces free of standard-fare workplace debris, they are usually not equipped to clean data centers, an undertaking that requires specialized training and years of experience. "A professional data center cleaning company will be one that has many years of experience cleaning data centers, utilizes industry standards for cleaning, and can provide assistance with customized maintenance plans for your particular site," says Kevin Vickery, president of ProSource Mission Critical Services (www.team-prosource.com).

Typical services should include subfloor plenum cleaning, raised floor cleaning, equipment surface cleaning, ceiling cleaning, and subfloor concrete encapsulation. A professional data center cleaning company will be dedicated to providing these kinds of services, whereas even the best janitorial service will not be able to provide them.

Pricing. Hector Gallardo, senior account manager at Plenum Cleaning Services (www.plenumcleaning.com), notes that whereas you can expect to pay from 50 cents to $1.20 per square foot for professional data center cleaning, few commercial janitorial services could provide those services at any price. Gallardo also cautions against taking the inexpensive way out: "The lowest bid is not necessarily providing the level of service you want and need," he notes.

Due diligence. Gallardo further recommends asking whether the cleaning company's workers are full-time employees or contracted temps, requesting a demonstration, and asking for a customer satisfaction guarantee. Keep in mind the following: Get a detailed scope of work, including insurance, equipment, and materials; ask if employees are background-checked and drug-screened; check inside the plenum and on the underside of the access floor tiles for cleanliness; ensure that all tiles are lifted and cleaned on all sides, especially concrete-filled waffle tiles, which often have concrete residue from the manufacturer and other contaminants; and do not allow anyone to use liquids (or machines that require liquid) to clean your data center. Last but not least, says Gallardo, be sure to periodically check the work in progress.

Keep it clean. Once your data center is cleaned to your satisfaction, you should do your part to ensure that it stays as clean as possible, Hill says: Don't allow food or drink in the data center, place contamination control mats at all entrances, and don't allow dirty carts or materials inside the data center. If drilling inside is necessary, appropriate safeguards must be employed to limit migration of contaminants. P

Buyers' Checklist

- ✔ Get a detailed scope of work.
- ✔ Require that employees be background-checked and drug-screened.
- ✔ Check the work in progress periodically.
- ✔ Do not allow the use of liquids of any kind to clean your data center.

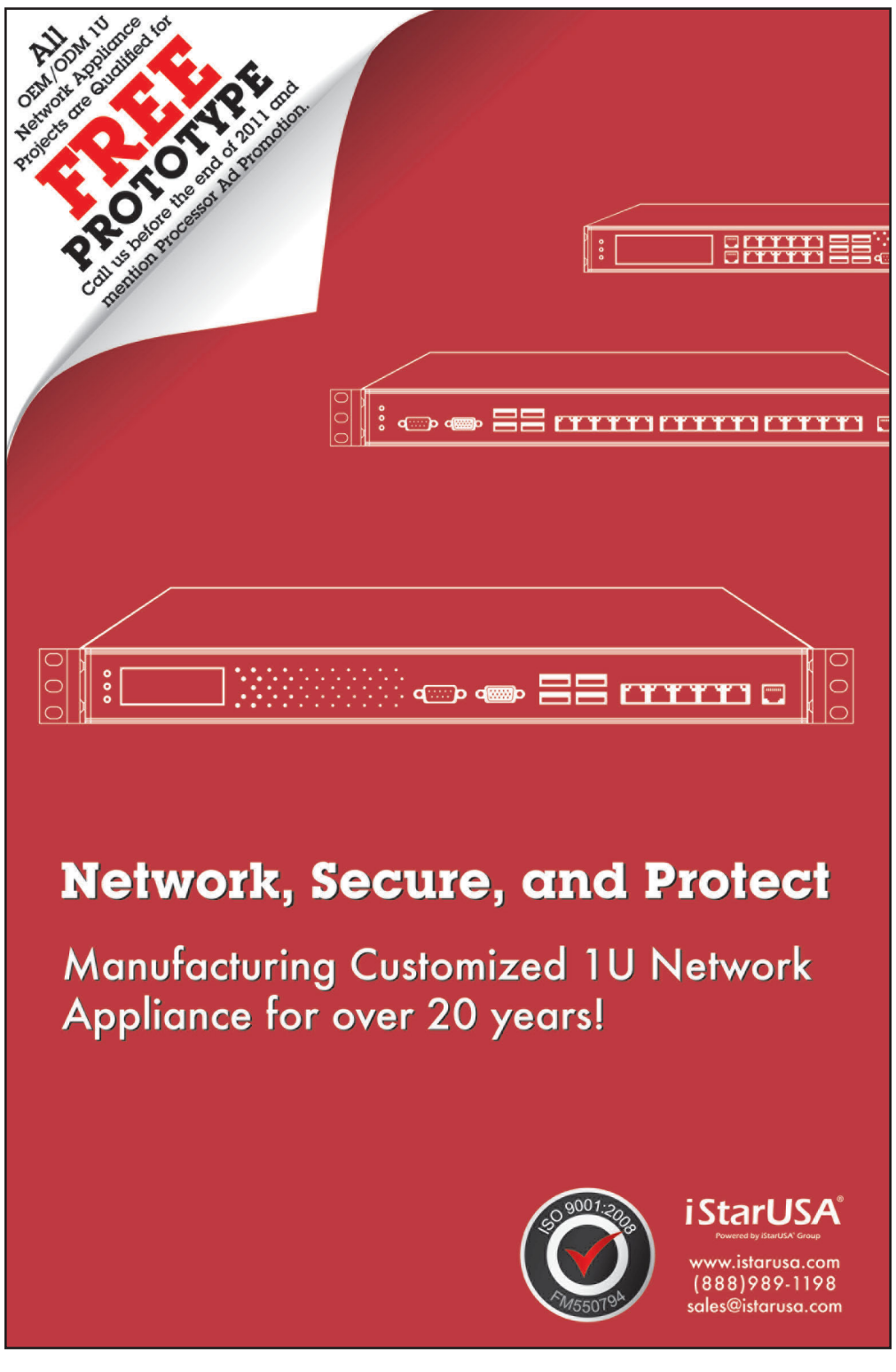
Key Terms

Airborne contamination.
Gaseous and particulate contamination that can lead to equipment failure; often gauged by particulate sampling.

ISO 14644-1.
An international standard for cleanrooms and controlled environments.

Particulate migration.
The movement of contaminants from one sector or piece of equipment to another, often as a result of the contaminant changing form as it's crushed and spread.

Plenum.
An enclosed space (often beneath floors or in ceilings) used for HVAC, cabling, etc.



PRODUCT SPOTLIGHT

Data Center Cleaning Services

Controlled Contamination Services

Description

Specializing in working with data centers of all sizes, Controlled Contamination Services can clean the most sensitive components to rid your data center of fine particles, residue buildup, and other contaminants. Professionals will clean server rooms with the latest micro-cleaning techniques. Controlled Contamination Services performs background checks on its own employees to ensure that your facilities and equipment are in the right hands.

- Services for UPS rooms, computer rooms, and network control centers
- Proper cleaning materials reduce electrostatic charges and protect sensitive environments
- Cleaning services also disinfect raised floor areas and command centers
- Removes dust that air filters can't catch

Best For: Data centers with sensitive equipment that needs cleaning.

Data Clean

For more than 30 years, Data Clean has been trusted by thousands of controlled environments worldwide. Data Clean specializes in maintenance and the identification, cleaning, and remediation of contamination that costs you where it counts: reduced productivity, customer satisfaction, downtime, and lost revenue.

- Specializes in controlled environments: data centers, computer rooms, and cleanrooms
- Full-service branches located in the United States, Canada, Mexico, Saudi Arabia, and Asia
- Flexible scheduling 24/7
- Dedicated workforce of highly trained and uniformed technicians
- 100% satisfaction guarantee

Best For: Data centers that demand detail-oriented cleaning, regular maintenance, and post-construction cleaning.

Data-Tec Systems

Data-Tec Systems specializes in servicing a variety of IT-related facilities, including computer rooms, server rooms, print facilities, MDF rooms, item processing rooms, and even general office areas on raised flooring. Data-Tec Systems has been providing maintenance services since 1991 and can care for equipment, tile, subfloor, and access floor cleaning as a complete package. Data-Tec Systems employs trained technicians who know how to manage delicate IT equipment while cleaning data center rooms.

- Periodic computer room exterior shell cleaning
- Access floor tile surface cleaning with pretreated, environmentally safe cleaners
- Subfloor tack cloth wipe-down
- Access floor installation and replacement

Best For: Data centers that utilize multiple rooms.

Premier Solutions Co.

Description

Since 1997, Premier Solutions Co. has provided DCM (Data Center Maintenance) to the industry, gaining a 97% Excellent rating along the way and generating a 99% client retention rate over the past five years. Premier Solutions Co.'s comprehensive approach to DCM eliminates contaminants within your data center environment, protecting your valuable IT assets from the intrusion of particulates such as dust and dirt. Boasting an extensive crew training program, Premier Solutions Co. conforms to ASHRAE TC9 specifications, has adhered to a 100% uptime policy, and has cleaned more than 10 million square feet of data center flooring. We exceed your expectations!

- Cleans raised floors, subfloors, hardware, and servers, including high-density servers
- IDF/MDF rooms
- Ceiling tile cleaning
- Green Seal-approved products
- Onsite cooling/power assessment

Best For: Enterprise-level data center operations, co-location companies, and IT operations where security is maintained at the highest levels.

Contact: (714) 557-5800 | www.premiersolutionsco.com

ProSource Mission Critical Services

ProSource offers mission-critical data center cleaning services that consist of multitier, time-sequenced preventive maintenance plans for cleaning the data center's subfloor, raised floor, equipment surfaces, and ceiling areas. ProSource also offers subfloor encapsulation that includes an epoxy coating application to prevent subfloor plenum dust. Additionally, ProSource offers many products to help prevent contamination and static build-up in the data center, such as contamination control sticky mats, bypass airflow grommets and blanking panels, antistatic cleaning chemicals, and raised floor supplies.

- Standard service options include annual, semi-annual, quarterly, and monthly preventive maintenance service plans
- Customized plans are available to meet the specific needs of individual facilities
- Raised floor surface cleaning features Pro-Tek and Microfiber Flat Mopping System

Best For: Data centers that want to prevent the accumulation of dust and contamination that can cause unwanted downtime.

Sealco

Sealco specializes in cleaning and maintaining computer rooms and their support equipment. Whether it's post-construction cleaning or a preventive maintenance program, Sealco's services will allow your data center to meet today's environmental needs at an affordable price. Acknowledging the customer's concern for safety and security, all Sealco technicians receive extensive background checks and training in data center operations.

- 26 years in the data center cleaning industry
- Permanent full-time employees are background-checked and drug-tested both before and during employment
- AirSeal bypass airflow programs designed to decrease energy consumption and increase infrastructure capacity
- Full line of computer room products
- Zinc whisker remediation
- Nationwide services

Best For: Any IT environment that needs cleaning services performed on any scale.

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

GCA Services Group

GCA Services Group does more than simply clean your data center; it offers a host of facility maintenance programs suited for the needs of individual data centers. GCA Services also offers custom Green Cleaning to ensure the health and safety of occupants while ensuring that it uses the most environmentally friendly methods available.

- Services adhere to cGMP techniques, IEST Federal Standards, and ISO Cleanroom Operations Standards
- Maintains bio-pharmaceutical, semiconductor, aerospace, bio-safety, chemical, defense, nanotechnology, and optics environments
- Sterile environment cleaning includes decontamination, disinfection, gown room management, lab support services, and more
- The Green Cleaning program provides custodial effectiveness assessments, sustainable cleaning processes, and certified sustainable chemicals while complying with GREENGUARD and offering Green Seal-compliant products

Best For: Environmentally conscious data centers.

Paragon International

Paragon International services more than 30 million square feet of critical environments annually, including medical, pharmaceutical, micro-electronic cleanrooms and data centers. Uniformed, meticulous technicians routinely exceed ISO 14644-1 for cleanrooms and thus help assist clients to cut costs by eliminating downtime. Every staff member is familiar with the hazards associated with critical environments and understands the sensitive nature of data center and cleanroom equipment. All staff members are trained by an Atlanta-based operations team, and there are employees in place to help with critical environment cleaning across the United States. All chemicals used have been custom-formulated for Paragon and are ESD where necessary. Paragon also offers free mini-audits to help assess the health of your data center and offer suggestions on where improvements can be made.

- Post-construction cleaning, access floor cleaning, disaster recovery, equipment cleaning, and microelectronic equipment decontamination
- ESD concrete sealing using custom formulated sealer
- Pre- and post-cleaning environmental reports and particle counts
- Air cooling efficiency auditing and custom cooling solutions
- Pest and rodent remediation

Best For: Companies with cleanrooms or critical environments of any sort—data centers, pharmaceutical environments, and medical or critical environment manufacturing.

Plenum Cleaning Services

Plenum Cleaning Services cleans data centers, telecom centers, and MDF and IDF rooms, as well as power/electrical rooms in accordance with ISO 14644 standards, without introducing any liquids or scrubbing machines that require liquid. Plenum Cleaning Services can customize a data center cleaning program to meet your business and budgetary needs. Available services include cleaning of plenums, access floor tiles (all sides), access floor frames, vinyl composition tile floors (strip and wax), hardware, equipment, cages, fences, overhead cable trays, lights, furniture, and wall fixtures. The company also offers post data center construction cleaning.

- Improves the static dissipation properties and prolongs the condition of the high-pressure laminate access floor
- Lowers cooling costs by reducing air density and improving air quality by removing 99.999% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.12 micron or larger
- Prolongs the lifetime of hardware and equipment by maintaining optimal operating conditions, including airflow and temperature
- Improves aesthetics
- Provides unsurpassed service and offers a 100% customer satisfaction guarantee
- References available with written estimate

Best For: Preventing costly downtime related to thermal shutdown as a result of components overheating due to dust and debris buildup.

SPEC-CLEAN

SPEC-CLEAN provides continuous maintenance programs and post-construction specialized cleaning that's based on the needs of your data center or critical environment with flexible scheduling and full-time trained technicians. SPEC-CLEAN services include exterior and interior hardware cleaning, HEPA vacuuming of the subfloor, and reconditioning the surface of raised floor and non-raised floor environments. SPEC-CLEAN also provides environmental follow-up site reports, emergency cleaning, and zinc whisker remediation.

- Complete cleaning of exterior and interior of server cabinets
- HEPA vacuuming takes care of dust on exterior cabinets, monitors, and flat surfaces
- Client walk-throughs to ensure that you're 100% satisfied
- Cleaning solutions used are approved for data centers and mission-critical environments

Best For: Data center managers who like reliable, detail-oriented deep cleaning.

Contact: (203) 885-0174 | www.specclean.com

Specialty Cleaning Services

Specialty Cleaning Services can effectively clean data centers, while also taking care of cleanroom, industrial lighting, acoustical ceiling tile, and post-construction cleaning. Offering five basic services, Specialty Cleaning Services uses HEPA-filtered vacuums, lint-free dust cloths, and sterile cleaning agents to complete commercial cleaning tasks such as exterior hardware cleaning, top-of-floor cleaning, underfloor plenum cleaning, above-ceiling cleaning, air sampling, and environmental reports.

- Heavy-duty cleaning for post-construction facilities
- Cleanroom sanitation for large facilities
- Water-based, nontoxic cleaning materials for acoustical ceiling tile
- Services are available for scheduled intervals throughout the year

Best For: Data centers that want detailed, hands-on professional cleaning services.

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NEW PRODUCT

that data center/IT managers would be interested in learning about?

Send your press release or related product information to press@processor.com.

Evaporative Cooling Explained

The Promise Of Energy Savings Make This Cooling Strategy Worth Looking Into

EasyStreet Online Services in Portland, Ore., recently commissioned a 7,000-square-foot data center using evaporative coolers. In the new system, a network of individually tuned chimney cabinets and overhead ducts capture hot air in the data center and route it to rooftop cooling units. The units then pump chilled water through an indirect coil to pre-cool fresh outside air. This air then passes through direct evaporative media to cool it to a temperature below that of the ambient wet bulb. The cooled air descends from the roof through plenums and into the data center.

Even though EasyStreet is in the favorable climate of the Pacific Northwest, it was eager to take advantage of evaporative cooling; the company anticipates that captured and filtered rooftop rainwater will provide 70% of the water required to cool its data center equipment, and that the lack of refrigerants in the system will lower its maintenance costs.

Such is the promise of evaporative cooling, a process that cools air through the evaporation of water. Evaporative cooling works by employing vaporization; the temperature of dry air can be reduced significantly through the transition of liquid water to water vapor, requiring much less energy than refrigeration. In dry climates, it has the added benefit of creating an air-conditioned environment for workers.

Ideal Climates

Evaporative cooling refrigeration equipment can be used effectively in any climate, but it has its greatest impact where there is the greatest difference between the dry-bulb temperature and the wet-bulb temperature of the air being cooled, according to Brett M. Griffin, senior associate at Environmental Systems Design (www.esdesign.com).

"This means that arid climates will produce the most efficiency savings by means of evaporative cooling," Griffin says. "Similarly, evaporative cooling can be applied to most data center environments, but the most effective environments are ones that have high densities requiring high air change rates at very high sensible heat ratios."

Indirect evaporative cooling, Griffin adds, can be used most effectively if there is a large source of process exhaust that can be used as the secondary evaporative cooling air stream.

"Data center environments that are less suitable for evaporative cooling are ones that have strict high humidity constraints and ones that are lower-density in nature," he says.

Key Points

- Evaporative cooling significantly reduces the temperature of dry air through the transition of liquid water to water vapor.
- The process is best deployed in dry, hot climates and doesn't work well in humid areas; quality of air is also a concern, especially in areas prone to dust storms or wildfires.
- When used properly, evaporative cooling can bring significant energy savings, as it requires much less energy than traditional refrigeration.

With indirect evaporative cooling, an air-to-air heat exchanger is used to separate the primary air stream entering the space from the secondary air stream where the evaporative cooling takes place. This lowers the dry-bulb temperature and does not introduce humidity into the space.

Tom Stimmel, director of operations for CoreLink (www.corelink.com), says most data centers are better suited to indirect evaporative cooling.

"In a data center environment, you would want to reach a point where the moisture isn't introduced into the environment," he says. "You need a certain level of humidity and a certain level of temperature, so you wouldn't want an evaporative cooling system in a data center unless you had an exchanger sitting outside."

Because evaporative cooling uses outside air and takes advantage of the air's ability to carry additional moisture to absorb heat, that means its effectiveness depends greatly on the climate in which it's deployed. If the air is already very humid—think Louisiana vs. Arizona—then evaporative cooling probably shouldn't be used.

"Evaporative cooling is definitely best suited to drier climates where the relative humidity doesn't get above 25%," says Ken Goodrich, founder of Yes! Air Conditioning & Heating (www.yesairconditioningandheating.com).

Pros & Cons

The obvious advantage to evaporative cooling is that it saves energy, which therefore saves money. Goodrich estimates that an evaporative cooling system can lead to 75% less energy consumption for a data center.

"If it's used appropriately, evaporative cooling can take the place of mechanical refrigeration for some parts of the year," Griffin says. "This can save significant energy. Evaporative cooling can also be applied to the refrigerant equipment itself and can take the place of the condenser water system. This also can save a significant amount of energy."

"Another advantage is that you have fewer moving parts, as well as the fact that with the humidity that evaporative cooling introduces, you have less likelihood of static electricity in the data center," Goodrich says.

There are drawbacks, too. Evaporative cooling could potentially require more maintenance and have a higher "first cost" impact, Griffin says. Also, because the process relies on outside air, it is also subject to the quality of the air, according to Terry Rennaker, vice president of Skanska USA (www.usa.skanska.com).

"[Dust storms] would wreak havoc on an evaporative system, as would a brush fire or any highly polluted air source," he says. "The data center would have to shut down the system and revert to standard systems to operate. This necessitates the installation of both traditional cooling systems as backup to the evaporative systems." P

> "Data center environments that are less suitable for evaporative cooling are ones that have strict high humidity constraints and ones that are lower-density in nature."
>
> *- Environmental Systems Design's Brett M. Griffin*

Decoding Evaporative Cooling

When referring to evaporative cooling, Griffin says, be aware that there are two types: direct and indirect.

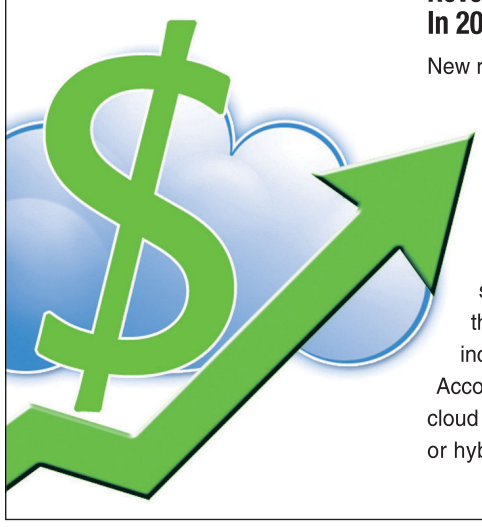
With direct evaporative cooling, the cooling apparatus cools the air by evaporating water directly into the air stream entering the space. This lowers the dry-bulb temperature and raises the relative humidity of the space, and it is most commonly applied to very dry environments and spaces with high air exchange rates.

Water Concerns

Are data centers and evaporative cooling a good match? Some don't think so, mainly because unlike refrigeration, evaporative cooling requires a water source and must continually consume water to operate, and having all that water in or near a data center is inherently risky considering the pricey electrical components contained therein.

"Evaporative cooling works best in dry environments and can be effective in cooling environments where creating a high humidity situation is not an issue," says John Luludis, president and co-founder of Superior Technology Solutions (www.superiortechnology.com). "However, evaporative cooling injects vaporization into the environment at a rate of about 80% relative humidity. This could create a condensation risk that could be very harmful to the computing environment."

News



External Cloud Storage Revenue To Reach $1.45 Billion In 2015

New research from Gartner found that worldwide revenue for external disk storage hardware used in external cloud computing-based systems will grow from $267.4 million this year to $1.45 billion in 2015. Gartner says revenue could reach more than $417 million this year, an increase of 56% from last year. According to Gartner, an external cloud deployment is a public, private, or hybrid cloud from a third-party provider that serves multiple customers. Although external disk storage used in external clouds made up only 1.4% of the overall external disk storage market in 2010, Gartner says the segment is set for rapid growth because many external cloud services are just starting to build out their infrastructure.

Google Regains Lost Market Share . . .

According to data from comScore, Google's share of the U.S. search market reached 65.4% in September, reversing a small decline in August, when its market share dropped to 64.8%. That was the first time in two years Google's share had fallen below 65%. Yahoo!'s share was 15.5% in September, a drop from 16.3% in August. ComScore said that Bing's share stayed at 14.7% from month to month. Of the more than 17 billion Internet searches conducted in September, Google accounted for 11.1 billion, Yahoo! had 2.8 billion, and Microsoft had 2.5 billion.

. . . & Reports 33% Q3 Revenue Increase

Google reported increases in profits and sales during its third quarter. In a conference call, CEO and co-founder Larry Page said that Google's revenue for the quarter was $9.72 billion, a 33% increase since the same quarter last year. Net income was $2.73 billion, up from $2.17 billion. Revenue and net income surpassed Wall Street estimates. Google also saw a 30% increase in the volume of users who clicked on Google-served ads in the quarter, and the average cost per click for advertisers increased by 5% from the same quarter last year. Page also said that Google's new social networking site, Google+, has gained more than 40 million members.

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Mobile Platform Security

Protect Your Enterprise & Data On Employee-Issued Mobile Devices

Chances are that the vast majority of employees walking around your building are unknowingly carrying security threats around in their pockets. According to security experts, mobile devices, such as smartphones and tablets, reprsesent a significant source of security risk, especially when jailbroken or used to synchronize corporate data with cloud-based services.

Carey Nachenberg, author of a white paper titled "A Window into Mobile Device Security," points out one of the major concerns with mobile devices in the enterprise: "Unfortunately there are very few tools right now to deal with the threats facing these devices." Without a centralized way to monitor mobile device security, it falls upon enterprise administrators to monitor several different security issues.

The Risks Of Jailbreaking

One of the major risks enterprises face is the use of jailbroken mobile devices in the enterprise. Users often use jailbreaking software to remove the security controls put in place by the manufacturer to prevent the use of mobile applications. These same controls often block functionality desired by users, leading to the proliferation of jailbroken devices.

Nachenberg explains that both iOS and Android devices are relatively secure, but jailbroken phones toss much of the security out the window. "When you jailbreak a phone, you effectively give each application root access to the system," Nachenberg says. "Data loss attacks are much more difficult to carry out when the device is not jailbroken."

Other security experts agree with Nachenberg. Tim Armstrong, malware researcher at Kaspersky Lab (usa.kasperskylab.com), says that "the best thing a company can do to prevent jailbreaking is to ensure that all devices are updated with the latest security patch. Once that exploit is closed, then the jailbreak will no longer be successful. Apple and Google regularly release security updates to close these loopholes."

In the case of mobile devices that an enterprise issues to its employees, Nachenberg suggests that IT personnel use a mobile device management platform that installs an agent on each phone that can determine whether it is jailbroken. When the management system detects a jailbroken device, it can take a number of actions, ranging from issuing a simple alert to the administrator to disabling the device.

iOS vs. Android: Which Is More Secure?

One of the biggest questions facing enterprises deciding upon a common mobile device platform is whether one offers a superior security model over the other. Although user preference may prevent some enterprises from consolidating on a single platform, security administrators should consider the security implications when making device recommendations.

On this front, Armstrong clearly gives Apple the nod. "It is certain that Apple's app review process adds security," he says. "It raises the bar of entry for cybercriminals in a number of ways, making the platform unappealing. This seems to be the very thing missing from the Android app market at this time. Due to the lack of review, we have seen multiple instances of malware in the Android market appear numerous times, resulting in the infection of hundreds of thousands of users." He suggests that "if Google were to add an effective application review process, this would greatly improve the safety of the market while limiting the ability of criminals to make malware widely available."

Mike Meikle, CEO of the Hawkthorne Group, reaches the same conclusion. "It is my belief that, since Apple has more control over what applications get approved and published in their app stores, it reduces the risk of integrating these devices into the corporate network."

Mobile Devices & The Cloud

After you ensure the mobile device you are using is secured, your job isn't finished, Nachenberg says. "It's very difficult to prevent data reaching these devices from reaching cloud-based services," he explains. Meikle adds that while organizations should have security policies that address these issues, "alone, this policy would not be sufficient since users will find solutions to their needs if the enterprise does not provide them. . . . So, the enterprise should provide private cloud services to meet their user's needs if the enterprise is serious about integrating mobile devices."

Armstrong explains that a key to preventing corporate data from leaking into the cloud, IT staff needs to educate employees on the proper use of security processes regularly. "Controlling what employees share can present a very challenging situation, as there are not many offerings in this space yet," he says. "A connection to the cellular network cannot currently be monitored through a company firewall."

Overall, mobile devices provide a productivity boon to an increasingly itinerant workforce. Enterprise administrators must carefully monitor for the mobile security risks associated with jailbroken devices and the use of cloud services. Experts agree that the best place to start is with a solid enterprise-wide policy addressing the appropriate use of mobile devices for corporate data. With this foundation in place, you can then deploy technical controls to enforce the policy on the mobile devices used in your organization. P

> "A connection to the cellular network cannot currently be monitored through a company firewall."
>
> *- Kaspersky Lab's Tim Armstrong*

Key Points

- Jailbroken devices represent significant security risks to enterprises. The act of jailbreaking bypasses many of the security controls designed to protect users and data.
- Ensure that applications installed on iOS devices undergo a security review.
- Users of mobile devices often use tightly integrated cloud services to store sensitive data, raising a number of security and privacy concerns.

Protect Your Enterprise

Jonathan Dale, product marketing manager at Fiberlink, recommends five steps enterprises can follow to protect data and employees against attacks targeted at mobile devices:

- Inventory all devices within the enterprise. Doing this lets you monitor what users and device types are gaining access to your corporate network.
- Require the use of passcodes and inactivity locks on devices.
- Implement a tool that automatically detects security violations and take enforcement actions.
- Require the use of current versions of mobile operating systems.
- Implement a mobile device management solution and require that all devices enroll in management.

News

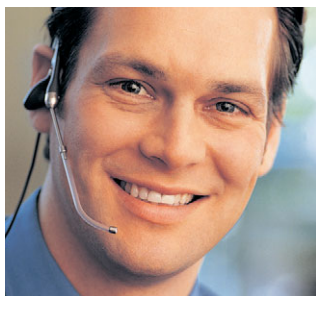
Study Looks At Millennials' Independent Approach To Tech Support

Independence and a willingness to handle repairs on their own are trademarks of the Millennial generation's attitude toward tech support, according to a recent study. Isurus Market Research and Consulting, together with Bomgar and GigaOM Pro, studied 400 knowledge workers from this age group in the United States, ranging from 20 to 29, who used a computer in their jobs on a daily basis and had access to employer-provided technical support. The purpose of the study was to look at how 20-somethings, raised on the Internet and instant communication, used technology in the digital workplace to resolve tech support issues.

Pervasive Independence

The overarching discovery of the study was that the Millennial age group is more than comfortable going it alone when it comes to resolving technical problems, rather than contacting internal tech support. When asked what sources they had used in the past six months, 71% had used Google, 24% posted to an online forum, and 16% sought help on Facebook, while 8% tweeted. Many of those who had experienced remote support expressed an interest in solving problems themselves and enjoyed watching the tech support rep do his or her job so that they could do it for themselves in the future.

The participants were asked about their feelings regarding communication and immediate gratification, problem-solving styles, and using personal technology to resolve technical issues. Surprisingly, social networks did not rank that highly when seeking tech support assistance. Not surprisingly, however, Millennials did not find the phone an appealing source for getting tech support help, opting more for text-based forms of communications. A need for immediate gratification was evident, with nearly 59% feeling a tech support response time of more than 10 minutes to be unacceptable, and 30% thought it should take only "a couple of minutes." A third of those polled felt they had at some time waited too long for a response, and many of those looked elsewhere for help. When they did look for that help, a third sought aid from colleagues or friends and a fourth from search engines such as Google. As for social networks, a common response was that they are not as fast or as private, and many saw them more as a source of entertainment than information. Many also rejected the telephone and email for being too slow, opting for faster forms such as chat.



BUYING GUIDE

Buying Tips:

Data Center Furniture

If only buying data center furniture were as easy as walking into a store, pointing at various items, and declaring, "I'll have that, that, and that." But, alas, things are a bit more complicated. The following advice from several experts will help ease the task.

Form and function. Before buying furniture, do some planning first, says Rackmount Solutions Account Manager Susan Wynne (www.rackmountsolutions.net). "Know the function of the room. Have in mind a design or layout of the space you're wanting to create. A sketch or draft of the room with the various components in place is helpful," she says. Additionally, know the dimensions of the space and furniture to ensure you meet requirements. Also helpful is knowing how a workstation will be used and by how many people to ensure overall comfort.

For companies with multiple users plying away over 24-hour shifts, "height adjustability/maneuverability is a must," says Jennifer Monroe, president of Office Organix (www.officeorganix.com). Beyond helping avoid static seated postures and fatigue from sitting, she says, "it's common knowledge that multiple postures over the workday lower the risk of injury on the job. Most high-end electrically adjustable IT furniture manufacturers offer an excellent warranty on the motor or moving parts, too, so the concern about breakdown or repair is minimal."

Weighty issues. Other considerations to keep in mind include built-in grommet cable management and power-port features to manage connections and wiring, Monroe says, as well as warranty stipulations and weight specifications/limitations. "Some 'fine print' often says that overall a unit may accommodate a total of 1,000 pounds, but if you read closely, per-shelf weights are quite different," Monroe says, so "avoid overloading and nullifying the warranty."

Kristen Speranza-Diamond, vice president of Hergo (www.hergo.com), says that it's important to stay up-to-date with changing technologies. "All of the equipment and LCDs are becoming much less expensive, so everyone is upgrading and making the transition to go compact," she says. Thus, flat-panel arms are more important than ever in terms of addressing space efficiency and ergonomics. "With the economy still in a precarious state, office and lab space is at a premium, and it's beneficial to go vertical and make the best use of square footage," she says.

Know the maker. Doing your due diligence to find a trustworthy, reliable vendor is important, says Eli Hertz, Hergo CEO and president. "You want a vendor that you can invest in for the future. You don't want to deal with a company that will only be around for a one-time purchase." Similarly, search for a vendor that can offer a complete solution, says Speranza-Diamond, so you're not in a position of having to go to multiple vendors to complete a project. P

Buyers' Checklist

- ✔ **Seek out quality.** Although looking for deals can help companies on a tight budget, sacrificing quality as a result can end up costing companies more in the long term, especially if buying from vendors that don't offer lifetime warranties on furniture.
- ✔ **Know the delivery terms.** Before buying furniture, determine if the delivery includes bringing it inside the facility, requires a lift gate or loading dock, and includes assembly or puts the responsibility on you or a third-party installer.
- ✔ **Go modular when possible.** Buying components that are interchangeable lets you modify the setup to meet changing needs, including downsizing or expanding space. Increasingly, individual furniture units can be mixed and matched and layout configurations easily altered.
- ✔ **Build vertically.** Purchasing components that support building vertically promotes space efficiency.

Key Terms

Adjustable height. Refers to components users can raise or lower for a better individual fit. Some higher-end furniture can be adjusted electronically.

Cable management. Built-in grommets, channels, or other features to manage cables and wiring.

Modular. Furniture components that are interchangeable or can be easily modified.

Recessed. Platforms that sit lower than the tabletop itself, sometimes at an angle, to allow for easier viewing of monitors.

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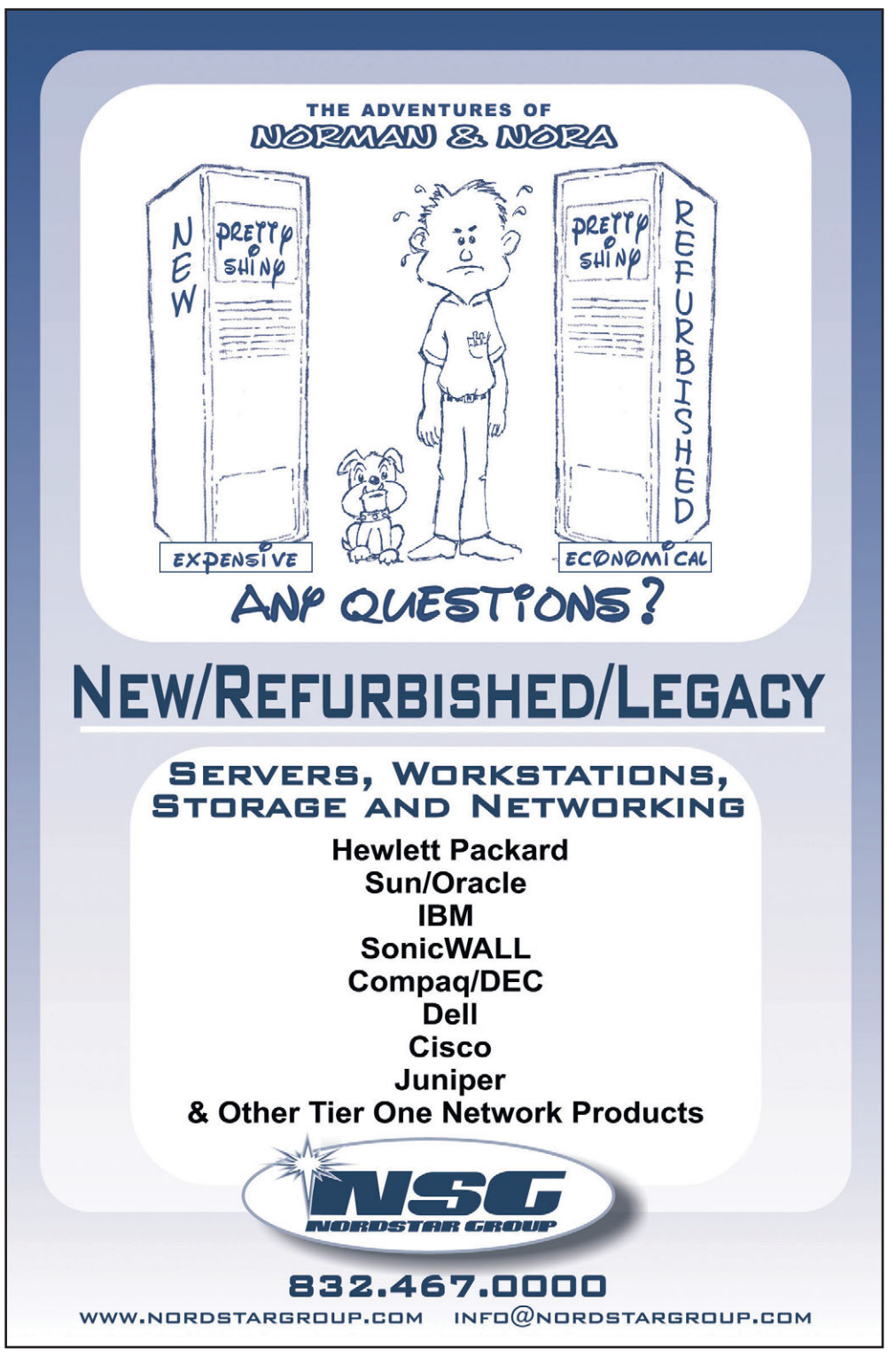

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PRODUCT SPOTLIGHT

Data Center Furniture

Data Center Depot Hercules LAN Station

Description

The Hercules LAN Station has an industrial-strength, super heavy-duty four-post frame and measures 84 x 72 x 36 inches. It's easy to assemble and has a 72- x 36-inch work surface, two upper shelves (72 x 24 inches), two steel legs with levelers, and three horizontal back panels.

- Shelves can hold up to 800 pounds and are adjustable in 1-inch increments
- Legs are made of 14-gauge tube steel
- Shelves are steel-reinforced and have high-density laminate
- 72-inch-high frame available for the same price as the 84-inch model
- Available in a variety of sizes
- Lifetime guarantee

Best For: Data centers in need of an easy-to-assemble, industrial-strength LAN station.

Price: Starts at $1,020

Data Center Depot Samson LAN Station

The Samson LAN Station features a super heavy-duty cantilever frame and measures 84 x 48 x 36 inches. The work surface measures 48 x 36 inches, and the two upper shelves measure 48 x 24 inches. The Samson comes with two horizontal back panels.

- Shelves can hold up to 450 pounds and are adjustable in 1-inch increments
- Legs are made of 14-gauge tube steel
- 72-inch-high frame available for the same price as the 84-inch model
- Lifetime guarantee
- Free consultation
- Available in a variety of sizes
- Optional accessories, including mobile server cart and pull-out keyboard shelves, are available

Best For: Data centers in need of a super heavy-duty LAN station that is easy to adjust or expand.

Price: Starts at $966

Hergo Commando2 Console

Hergo's double island top Command Center is a modular low-profile multi-monitor workstation for the modern day jack-of-all-trades operator.

- Four base frames - 42 x 30 inches (H x W)
- Two high-pressure laminated island desktops - 30 x 72 inches (W x L)
- Four track-mounted flat panel extension arms
- Side enclosure and modesty back panels
- Slide-out CPU shelf
- Under desk 19-inch relay rack

Best For: Command centers, call center and network operations where a multitasker can rise to the challenge and tackle daily hurdles in an attractive, efficient, and functional workspace.

Price: Starts at $5,899 (all items included as pictured)

Contact: (888) 222-7270 | www.hergo.com

Rackmount Solutions Heavy Duty LAN Rack/ Computer Station

Description

The Heavy Duty LAN Rack/Computer Station from Rackmount Solutions is designed for heavier equipment loads, with each shelf supporting more than 850 pounds. All shelves are adjustable in 1-inch increments and may be placed anywhere on the frame. This workstation features a high-quality tube steel frame and unlimited variations when combining different LAN station widths, plus corner stations.

- Fully welded four-post frame with 2-square-inch, 14-gauge steel virtually eliminates vibration
- 14-gauge steel horizontal back panels for maximum strength and stability
- Available in 36-, 48-, 60-, and 72-inch widths; 84 inches high
- 1.25-inch-thick work surfaces support more than 850 pounds each
- LAN rack ships fully enclosed in a shipping crate to protect from damage

Best For: Anyone who needs shelving that can support heavy loads or flexible configurations.

Price: Starts at $1,154

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Recessed Monitor Corporate Training Tables

Rackmount Solutions heavy-duty Recessed Monitor Corporate Training Tables allow plenty of surface space for manuals and workbooks while giving users lines of sight to the moderator and any video instructions being displayed in the front of the room. These tables are customizable with a variety of LCD mounts and keyboard trays.

- Choose from stock 36-, 48-, 60-, or 72-inch widths or a custom configuration
- Dropped monitor platform is on a 22% angle, 4 inches in front and 7 inches in back, for clear view of instructor
- 14-gauge steel legs and a 1.25-inch-thick laminated table surface make these units almost indestructible
- Table adjusts from 26 to 32 inches high to accommodate various employee heights
- Includes out-of-sight cable management under the table surface

Best For: Corporate training areas that require versatile, highly durable tables that must cater to multiple users and frequent ergonomic adjustments.

Price: Starts at $308

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Bravo Power Corporate Training Tables

Bravo Power Corporate Training Tables from Rackmount Solutions make it easy to connect your monitor, an Internet connection, and additional peripherals to Rackmount heavy-duty corporate training room tables by using a recessed, pop-up, or under-table power source. These tables are customizable with a variety of LCD mounts and keyboard trays and are ideal for environments where a power source on the table enhances usability and convenience.

- Choose from stock 36-, 48-, 60-, or 72-inch widths or create a custom configuration
- Common power modules used are two CAT 6 RJ-45 and two 15A/125V receptacles with circuit breaker, but modules can be interchanged to fit your needs
- Heavy-duty 14-gauge steel legs and a 1.25-inch-thick laminated table surface make these units almost indestructible
- Superior strength with support for up to 900 pounds

Best For: Corporate training areas that require versatile, highly durable tables with the convenience of power built in.

Price: Starts at $439

Contact: (866) 207-6631 | www.rackmountsolutions.net

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Hergo Large Screen Multi-Media Cart

Hergo's large screen open frame cart features a Universal Tilt Plasma LCD Mount to accommodate units from 37" to 60".

- 72- x 36-inch (HxW) frame assembly
- 26-inch legs with heavy-duty casters
- 12-inch utility shelf to hold remote controls, DVDs, or product manuals
- 36-inch horizontal cable raceway
- Quality powder coat finish – environmentally friendly
- Options include power management, rackmount attachment brackets, and keyboard/mouse assembly

Best For: Customers needing a sturdy, all-in-one solution for presentation and AV equipment. Ideal settings include conference rooms, studios, classrooms, and libraries.

Price: Starts at $725

Contact: (888) 222-7270 | www.hergo.com

Hergo Personal Workstation

The Hergo Personal Workstation is a fully modular right- or left-hand user solution. Designed for a single- or dual-monitor setup, this high-profile system provides maximum vertical mounting space for overhead storage and suspended or track-mounted flat-panel screen management.

- Double 11 GA metal-slotted frame unit measuring 84 x 60 inches (HxW)
- 72- x 30-inch (WxD) laminated desktop with left or right return (18-inch deep); also available in 60- x 30-inch configurations
- Monitor track shelf with LCD suspension system
- 18.5-inch-deep mounting shelves with upward or downward brackets
- 30-inch-wide metal-locking storage compartment with laminated, hinged flip-up door
- Power and cable management options

Best For: Multitaskers who require additional work surface and storage space.

Price: 84- x 60-inch unit with 72-inch L desktop is $2,745 with monitor suspension, file cabinet, and side panels, or $2,195 for track-mounted LCD and no file cabinet or side panels.

Contact: (888) 222-7270 | www.hergo.com

Hergo Technical WorkBench

Hergo's Technical WorkBench has the quality and durability of an industrial rack with a sleek, cutting-edge modern presentation.

- Three 11 GA Metal Base Frames – 84 x 24 inches (HxW)
- High-pressure laminated desktop – 72 x 36 inches (WxD; ESD top also available)
- Two telescopic support uprights
- Three vertical cable management raceways – 60 inches (length)
- Six gliders
- Quality powder coat finish – environmentally friendly
- Options include shelving, power management; overhead light assembly; tool trolley; dry erase, cork, or peg board; storage bins; keyboard tray

Best For: Laboratory, industrial, or technical environments where a user needs an open work surface to assemble or repair equipment.

Price: Starts at $1,595 (Base Unit), $1,715 (Base Unit with ESD Desktop)

Contact: (888) 222-7270 | www.hergo.com

Uptime4u Anthro Elevate Electric Lift Corner Dispatch Console

The Anthro Elevate Electric Lift Corner Dispatch Console available from Uptime4u utilizes the space-saving design of a corner console combined with the ergonomic benefit of an electric-lift adjustable-height unit. Six or more flat-panel monitors can be fully utilized while keeping everything within easy reach of the user. Network cables are efficiently routed to prevent work surface clutter.

- Fits true to corner and utilizes every inch of wall space
- Console height adjusts quickly and quietly at 1.5 inches per second
- Maximum flexibility with keyboard/mouse platform that swivels, tilts, and moves in and out and up and down
- Sturdy steel legs are mounted solidly to base and frame

Best For: Data centers, control rooms, computer rooms, and dispatch and 911 centers where users need ergonomic adjustability and modular design in a heavy-use environment.

Price: Starts at $3,500

Uptime4u EDP Contour Advance Data Center Console

The EDP Contour Advance Data Center Console available from Uptime4u offers easy adjustment of sit/stand features at the press of a button. Ergonomic design combines with durable construction, flexibility, and well-planned wire management in this console solution. Numerous configurations are available for your specific needs, including single, double, and team workstations. This console is engineered to withstand frequent usage and to meet public safety sector standards.

- All-steel frame construction offers long-term resilience, even in 24/7, multishift environments
- Independent height adjustments for keyboard and monitor deck
- Accommodates a range of accessories, including display arms, whiteboard inserts, and acoustical fabric wraps
- Secure storage of dedicated CPU modules either beneath the work surface or in a matching enclosure

Best For: Demanding call center and public safety environments that must be up and running 24/7.

Price: Starts at $8,000

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How Are SSDs Revolutionizing The Data Center?

Solid-State Drives Offer SMEs Speed, Reliability & Low Energy Consumption

If your data center is not currently investing in SSDs (solid-state drives), or even looking into them, perhaps a quick review of their benefits is in order.

SSDs trounce hard drives with very quick access times and outstanding read rates—both attributes that fuel high server performance. Thanks to controllers that use multiple channels to address NAND storage chips, as well as on-the-fly hardware compression for applicable data, enterprise SSDs can reach speeds near 3GBps, even while writing.

SSDs work in silence, as they have no moving parts. They also employ robust error correction code to maintain data integrity. Their longevity is on par with most hard drives thanks to features such as capacity overprovisioning and wear-leveling techniques.

Finally, and most importantly from a financial point of view, SSDs can reduce power consumption in servers formerly saddled with rotating disk drives. So what affect are these storage powerhouses having on the data center?

Changing The Game

It's not an exaggeration to say that enterprise SSDs are revolutionizing the data center in a number of ways.

"Data centers are one of the best examples of how enterprise SSDs can make an immediate difference, improving reliability, data security, and performance" of storage, says Alex Mei, CMO of OCZ Technology Group (www.ocztechnology.com).

"Enterprises invest in SSDs for two primary reasons: to fulfill the new data demands that cloud computing and video streaming applications are bringing and to increase efficiency by reducing storage footprint and power needs," says Kevin Dibelius, senior product marketing manager at Micron (www.micron.com).

Like enterprise hard drives, enterprise SSDs are optimized for the high duty cycles of the always-on business world. "These enterprise SSDs are designed with features that improve manageability," such as high-bandwidth PCI-E interfaces and power loss data protection, Mei says.

"PCI-E SSDs in particular have taken on an increasing role, primarily due to their ability to bypass traditional storage protocol overheads, reducing latencies, increasing throughput, and enabling the efficient processing of large amounts of data," Mei explains. "Not only are these SSDs more powerful, but they also significantly reduce costs associated with infrastructure and maintenance, and [they] help decrease the total footprint and complexity within enterprise data centers."

Cost & Capacity

Although the price per gigabyte for SSD storage is gradually falling, it's still much greater than the cost/capacity ratio of hard drives. Still, data centers are making the investment in solid-state storage, even in these economically uncertain times.

"While there is still a premium on the cost per gigabyte of SSDs vs. HDDs, the cost per I/Ops paints a vastly different picture, making SSDs the ideal choice for the upper tiers that deal with high transactions within the data center," Mei says.

"Contrary to popular belief, [SSDs] are actually more cost-effective than HDDs in these situations due to their reliability and low power use," Dibelius says.

Expanding Roles

Thanks to all of SSDs' positive attributes and to pricing that has improved over time, SSDs have moved from niche uses to the front lines.

"SSDs are being increasingly deployed in data centers and HPC, and we are seeing increased adoption in both enterprise and server storage applications where high transactional computing is required," Mei says. "It is in these applications where SSDs dramatically increase utilization and reduce the total cost of ownership for clients."

No less critical than the decision to use SSDs in the first place is the determination of how to use them. "From servers to storage to embedded applications, we have customers utilizing SSDs in a wide variety of applications," Dibelius says. "For example, we have one customer utilizing SSDs as a boot drive in an industrial PC application. We have another data center customer that's deploying SSDs as a storage tier, and yet another that's using SSDs in a high-speed networking application."

Dibelius concludes, "Read caching is definitely one of the areas where we see SSD adoption happening. Think video streaming and the exponential growth that's occurring. As more and more consumers look to access this video content, it's putting more pressure on the service providers to scale with this demand." P

Key Points

- SSDs are being used to accelerate transactional data, cloud apps, and other content, while hard drives continue to be used as mass storage in lower tiers.
- While SSDs still cost more than hard drives on a cost-per-gigabyte basis, their power savings and cost-per-I/Ops ratings emphasize their real value to the enterprise.
- SSDs' speed, reliability, and low energy consumption hit three major goals of today's data centers.

Complements, Not Replacements

Today's technology landscape dictates that data centers integrate SSDs as complements to existing hard drive-based storage.

"We're seeing the fastest displacement in areas where HDDs are being pushed into roles that they're not physically suited for—like short-stroking for high I/Ops, for example," says Kevin Dibelius, senior product marketing manager at Micron (www.micron.com).

"While flash-based drives can be used end-to-end, storage tiering is a great example of how SSDs can be used alongside traditional rotational media," says Alex Mei, CMO of OCZ Technology Group (www.ocztechnology.com). "We are seeing more and more SSDs being utilized at Tier 0/1 to handle the hot transactional data while SAS and SATA-based HDDs are used at the lower tiers for storage capacity."

Additionally, although SSDs work like hard drives for the most part, using interfaces such as SAS, SATA, and PCI-E, they're just different enough that you will want to ensure that your OS, defragmentation software, and formatting procedure are all current and SSD-aware.

"SSDs co-exist with HDDs and will continue to for the foreseeable future, but with SSDs, IT architects now have a new tool to address the challenges of managing increasing amounts of data efficiently," Mei says. "By using NAND-based storage alongside traditional rotational media, data centers can improve performance and reliability while reducing costs associated with maintenance and recurring power and cooling charges."

For more information on implementing SSDs in your enterprise, turn to "Getting Started With SSDs" on page 14.

News

PCI Security Standards Council Releases Tokenization Guidelines

The Payment Card Industry Security Standards Council published new guidelines in August to help merchants and other payment industry stakeholders adopt tokenization technologies that protect customer account information.

In tokenization, a customer's PAN (primary account number) is replaced with a surrogate value called a token, which can then be converted back into the original account information. Even if the token is stolen, a thief cannot access the customer's account information without access to the encryption method. The PCI Security Standards Council says tokenization can make it easier for merchants to comply with PCI standards because it reduces the number of elements to which the requirements apply.

"Depending on the particular implementation of a tokenization solution, tokens used within merchant systems and applications may not need the same level of security protection associated with the use of PAN," the report says. "Storing tokens instead of PANs is one alternative that can help to reduce the amount of cardholder data in the environment, potentially reducing the merchant's effort to implement PCI DSS requirements."

Implementing Tokens

The council's guidelines make several recommendations for merchants that implement tokenization. The report gives details on common tokenization system components, including how tokens are generated and stored. It also describes tokenization operations, security considerations, and the responsibilities for merchants that use tokenization.

In order to comply with PCI DSS standards, tokenization systems must meet several requirements. For example, the tokenization system must not provide a PAN in response to a system, application, or network outside the business's cardholder data environment. A merchant must also store all tokenization components on secure internal networks that are isolated from external networks, and only trusted communications must be allowed in and out of the system.

"Tokenization solutions can vary greatly across different implementations," the report says. "Merchants considering the use of tokenization should perform a thorough evaluation and risk analysis to identify and document the unique characteristics of their particular implementation, including all interactions with payment card data and the particular tokenization systems and processes."

The report also warns of the risks involved when adopting a tokenization system. Because tokenization is still an evolving technology, no industry standards for implementing secure tokenization solutions exist. "Also, the advent of new attack vectors is likely to increase threats to tokenization systems," the report says. "While a tokenization system may be secure against the best known attacks today, it may become vulnerable to attacks created in the future."

BUYING GUIDE

Buying Tips:

Unified Threat Management

Unified threat management incorporates a raft of network security technologies previously sold separately, such as intrusion prevention, spam filtering, and VPN. Not only does well-coded UTM keep disparate components from conflicting with each other, it gives them access to each other's expertise for better protection.

Here's a look at major features to keep in mind if your enterprise is planning to upgrade its UTM appliance.

Perimeter defense. If you think of a UTM as a castle, its firewall component is its moat. Pierluigi Stella, CTO of Network Box USA (www.networkboxusa.com), recommends that a UTM appliance have at least SPI (stateful packet inspection) capability. Better yet, he says, is a hybrid firewall with SPI, proxy, and packet filtering features.

Additionally, the UTM must come with intrusion detection and prevention systems. The IDS/IPS should be inline with the firewall and fully integrated with it to better stop threats at the edge.

Anti-everything. "Hackers use all kinds of ways to get in," Stella says. "You need to have protection against all of them." This means active safeguards against spam, phishing, Trojans, worms, and so on.

First, Stella says, a good UTM employs multiple antivirus engines with robust, real-time protection against zero-day attacks. The antivirus should cover multiple protocols. An additional ability to scan encrypted protocols, uncommon today, will become more important this year, he adds.

Also, Stella says, look for products from vendors that don't "dumb down" their low-end models intended for branch and remote offices. Although entry-level UTMs may provide proportionally more modest throughput and concurrent connection figures, he says, "it is very important that the technology offered for the small offices be exactly the same as that offered for the main office."

User-related protection. A UTM must provide policy enforcement, detection of attachments with potentially dangerous payloads, and server protection that leverages the firewall and IDS/IPS.

A Web access policy is also key, Stella says, as is secure VPN access with both IPsec and SSL support for site-to-site and roaming scenarios.

Continuous vendor support. After dedicating a skilled, onsite technician or two to professionally configure your new managed UTM to protect your network, the vendor must also monitor and manage the appliance all day, every day. This includes proactive updating instead of waiting for the devices to "check in" every so often.

"The Internet moves too fast for updates to be pulled from the devices. Push updates are now a must . . . to reduce exposure to zero-day threats."

True integration. A UTM should be a team effort, Stella says. All of its formerly disparate features must be integrated with each other. As examples, Stella says that just as the firewall and IPS should work closely together, the antispam should work with the IPS to temporarily blacklist source IP addresses and avoid spam floods. In a like manner, the Web access policy should consult with the antispam component to block emails containing URLs that are either harmful or just simply against company policy.

"In a true UTM device, all the functions work together as a whole, such that the final result is stronger than the sum of the parts."

Future tech. UTMs will likely add more new technologies that have traditionally been sold separately, Stella says, citing data loss prevention and vulnerability scanning as two examples. "More and more companies are demanding to see them integrated with the gateway protection," he says. P

Buyers' Checklist

- ✔ **Effectiveness.** How well does the appliance block malware and network threats, known and unknown?
- ✔ **Performance.** Is the system fast enough to have minimal impact on network throughput?
- ✔ **Price.** Beyond the purchase price and cost of initial, professional configuration, what's the ongoing subscription cost of remote management?
- ✔ **Reliability.** If the UTM comes in an appliance, does it have high availability features?

Key Terms

Appliance.
A standalone server for running a particular application, such as UTM.

Managed.
An appliance that a vendor remotely monitors, updates, and changes.

UTM (unified threat management).
Software (often installed on a managed appliance) that seeks to comprehensively block malware and network threats through features such as a firewall, antivirus, antispam, intrusion prevention, VPN, access policy enforcement, and more.

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PRODUCT SPOTLIGHT

Unified Threat Management

Check Point UTM-1

Description

The Check Point UTM-1 family of turnkey, comprehensive security appliances has several models covering the security needs of organizations ranging from about 75 users in size to up to 1,500 employees. There's zero-hour outbreak protection on board in addition to DoS and buffer overflow attack mitigation; instant messaging and P2P firewalling; and antispam via reputation, white/blacklists, and content analysis.

- Firewall throughput ranges from 1.5Gbps in the UTM-1 136 to 4.5Gbps in the UTM-1 3076
- Features IPS, firewall, antivirus, antispyware, URL filtering, Web security, and antispam functionality
- VPN throughput of up to 1.1Gbps in the UTM-1 3076
- Modular Software Blade architecture allows future addition of features such as SSL or IPsec VPN, VoIP, and more
- Support for up to 1.1 million concurrent sessions in the UTM-1 1076, 2076, and 3076
- IPS throughput of up to 4Gbps in the UTM-1 3076 80 to 160GB of onboard storage capacity

Best For: Medium-sized to large enterprises.

Check Point UTM-1 Edge N

The Edge N series has a very different focus than other members of Check Point's UTM-1 lineup. It's directed at SMBs and branch offices with pricing to match. Four models, including two ADSL editions, share the same performance specifications but differ in options such as Wi-Fi 802.11n, 3G modem support, Gigabit Ethernet, SFP and USB support, a print server, and more.

- 1Gbps firewall throughput
- 200Mbps VPN throughput
- 60,000 concurrent firewall connections

Best For: Branch offices and small to medium-sized businesses.

Crossbeam Systems X-Series

The X-Series Network Security Platform family from Crossbeam brings together a quartet of security appliances for a range of needs. The X20, X30, X60, and X80-S are based upon a blade-style, modular architecture—what Crossbeam calls an open, adaptable platform—for expandability. Each encloses at least one APM (application processor module), an NPM (network processor module), and a CPM (control processor module), along with Crossbeam's latest XOS operating system.

- Models support throughput of 5Gbps in the X20 to 150Gbps in the X80-S
- APM blades are available with up to 12 cores
- The updated XOS operating system version 9.5 supports more security applications

Best For: Service providers, telcos, and large enterprises.

SonicWALL NSA 2400

Description

SonicWALL says that its NSA 2400 gives small to mid-sized businesses comprehensive internal and external protection with easy, flexible setup. It boasts six Gigabit Ethernet ports plus dual USB connections for potential 3G wireless modem configuration access. The NSA 2400 is a next-generation firewall platform, the company says, bringing dual-core performance to the table along with advanced protection technologies.

- Application Intelligence and Control addresses leakage of sensitive data
- Granular control over basic policies and rules
- Reassembly-Free Deep Packet Inspection uncovers hidden threats
- Gateway antivirus, antispyware, and intrusion prevention

Best For: Branch offices and small to medium-sized businesses.

SonicWALL NSA 4500

SonicWALL bills its NSA 4500 as a next-generation firewall platform for central-site and large distributed environments needing high capacity and performance. The NSA 4500 includes dual-core processing, IPS, SSL VPN, high-availability technology, advanced networking, and proprietary features in an effort to provide real-time protection without sacrificing speed. SonicWALL says that the NSA 4500 supports a large but flexible deployment with 1,500 site-to-site VPN tunnels, 500 global VPN clients (3,000 maximum), two SSL VPN NetExtender clients (30 maximum), and two Virtual Assist Technicians (10 maximum).

- Reassembly-Free Deep Packet Inspection firewall
- SonicWALL Clean VPN secures tunnel access and traffic
- Application Intelligence and Control prevents data leakage

Best For: Midsized businesses; central-site and large distributed environments.

Trustwave Unified Threat Management

Trustwave says that its Unified Threat Management delivers a combination of critical security technologies in a single, cost-effective package. With two tiered models to fit a variety of perimeter security needs, Trustwave UTM is available as an appliance or as a fully managed service. Fully configured with antivirus, VPN, intrusion prevention, and a firewall, the appliances can furnish a total throughput of between 4Mbps (TS-10) and 124Mbps (TS-100).

- Stateful firewall
- Inline IPS
- Web and email gateway antivirus
- Web content filtering
- Site-to-site and remote user VPN
- Remote application access control

Best For: Small, medium-sized, and distributed enterprises.

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Fortinet FortiGate-3040B

High-bandwidth networks require high-bandwidth security. The FortiGate-3040B from Fortinet is up to the challenge. Sporting the highest 10Gb port density in its class, according to Fortinet, the FortiGate-3040B provides subscription-based, real-time security coverage. And with its purpose-built FortiASIC processors, it doesn't bog down the network.

- Hardware-accelerated 10Gbps Ethernet SFP+ and 1Gbps SFP ports
- 40Gbps firewall and 16Gbps IPsec VPN throughput
- Can support up to 4 million concurrent sessions and 100,000 new sessions per second
- 1.2Gbps antivirus and 5Gbps IPS throughput
- Redundant, hot-swappable power supplies

Best For: Large enterprises.

Juniper SRX Series Services Gateways For The Branch

Juniper says its SRX Series Services Gateways For The Branch UTMs are the only solutions that consolidate switching, routing, and security services in a single device to connect, secure, and manage any network. With five models for branch offices (and another five for the data center), the SRX series aims to deliver proven security services combined with superior availability and performance, while reducing total cost of ownership.

- Firewall, VPN, IPS, antivirus, antispam, Web filtering, and content filtering
- Wizards for quick and easy deployment
- AppSecure application-level monitoring and firewall
- Integrated and centralized reporting, configuration, policy management
- Integrated WAN/routing/QoS with Ethernet, 3G, LTE, T1/E1, xDSL, serial, and DOCSIS-3 options

Best For: Branch offices and small to medium-sized businesses.

Network Box M-255, M-285 & M-385

Network Box offers a range of UTM devices, with three aimed at medium-sized enterprises. New from Network Box is the M-385, which makes use of a 3GHz dual-core Intel Core 2 Duo processor to power its impressive security technologies. The M-285 (pictured) features a 2GHz Intel Pentium M processor. There's stateful packet inspection and packet filtering in the firewall, IDS and IDP, anti-malware, antispam/phishing, content filtering, IPsec and SSL VPN, and more.

- Supports up to 150 users
- The M-385 has seven Gigabit Ethernet ports (expandable to 11 and with fiber support); the M-285 has four Gigabit Ethernet ports and a 100Mbps port

Best For: Medium-sized enterprises.

Contact: (832) 242-5757 | www.networkboxusa.com

WatchGuard XTM 5 Series

A suite of management tools and enough speed to handle high-speed LAN backbone infrastructures and 1Gbps WAN connections mark the WatchGuard XTM 5 series of UTMs for midrange enterprises and SMBs. IT management access is provided by a centralized console, a CLI with script support, and a browser interface. The scalable XTM 5 series also comes with enhanced reporting skills and real-time monitoring provisions.

- Throughput up to 2.3Gbps firewall, 800Mbps XTM, and 750Mbps VPN in the XTM 530
- Up to 350,000 concurrent connections in the XTM 530
- 2,500 local user database
- Up to 600 branch office and 1,000 mobile VPN tunnels in the XTM 530
- Seven interface ports (six GbE and one FE)

Best For: Small to medium-sized businesses.

WatchGuard XTM 8 Series

The WatchGuard XTM 8 family of three UTM devices addresses the myriad security needs of main offices, headquarters, and other major facilities. The XTM 8 products supply full HTTPS inspection, IPS, antispam, and antivirus, plus optional features such as URL filtering, app control, reputation-enabled defense, and more. Administrators have access to the XTM 8 via scriptable command line, Web console, and WatchGuard System Manager. The system also provides rich reporting, real-time monitoring, clustering, and high availability (active/active and active/passive) features.

- Throughput up to 5Gbps firewall, 1.6Gbps XTM, and 1.7Gbps VPN in the XTM 830
- Up to 1 million concurrent connections in the XTM 830
- Up to 6,000 branch office VPN tunnels in the XTM 830
- 10 1Gbps Ethernet interface ports (four fiber ports optional)

Best For: Main offices/headquarters, medium-sized to large enterprises, and data centers.

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HOW TO

Track & Monitor Your Wi-Fi Network

Increase Security, Maximize Performance & Boost ROI

Key Points

- Security monitoring may be a requirement for meeting HIPAA, PCI, or other compliance mandates.
- Tracking your network's performance metrics will allow you to ensure maximum efficiency and the best return on your infrastructure investments.
- Realistically assess your internal resources before committing time or dollars to any system.

As more companies add wireless access to their traditional networks, and as enterprises are abandoning old wired connections in favor of more flexible wireless ones, network monitoring is becoming increasingly important. "Monitoring tools are essential for identifying issues quickly and resolving them," says Pablo Estrada, solutions architect at Meraki (www.meraki.com). He also says that some networking solutions have these tools built right in, so the cost doesn't have to be overwhelming.

Designing the right solution for your enterprise's architecture will help maintain the integrity of your network while ensuring users receive the best possible experience. "By implementing well-thought-out security and management systems, a Wi-Fi network can be operated safely and effectively, giving users the performance of a wired network and the mobility of a wireless network," says Brian Mason, director of product marketing at Xirrus (www.xirrus.com).

✔ Increase Security

For many organizations, maintaining network security isn't just about best practices. If you operate under HIPAA, PCI, or other regulatory requirements, then thorough monitoring of your Wi-Fi network is a must. "One obvious thing that's going to be a problem is that whatever you transmit on wireless is going to be visible around you—outside, in the parking lot, in the street," says Hemant Chaskar, PhD, vice president of technology at AirTight Networks (www.airtightnetworks.com). He cautions that the wireless signals aren't usually contained within the walls of your facility, and "if you have access from within the enterprise, the person who is sitting outside could access the same thing." Chaskar says this kind of eavesdropping must be prevented, and a monitoring system that detects the unauthorized use of sniffing equipment will help to prevent outsiders from infiltrating your enterprise's defenses.

In addition to managing your network's security through authentication and encryption, a strong monitoring system can also detect and thwart other types of security threats. "Monitoring the Wi-Fi network for security threats involves identifying potential threats and then mitigating those threats," Mason says, describing the process also known as intrusion detection/intrusion prevention. "When an IDS/IPS detects common network attacks, such as phishing and denial-of-service, it will work to render the attacks useless."

✔ Maximize Performance

Providing users with the wireless experience they need, along with ensuring that network resources are operating efficiently, are among the reasons to monitor your Wi-Fi network's performance. "Network availability and performance monitoring is done to ensure that all of the network components are accessible and behaving properly," Mason says. "More advanced network monitoring tools can also help identify issues with users' computers or other network elements." He says this type of monitoring is typically done with a network management system and will also help to confirm the network is functioning correctly and efficiently and is meeting user requirements.

Another reason to implement a strong network performance monitoring tool is to oversee and optimize how the network infrastructure is being used and how well it's meeting your organization's usage expectations. In addition to keeping an eye on such things as application access and performance, enterprises can also identify and eliminate inefficient use of resources. "Administrators can use monitoring tools to make sure that their wireless network is primarily used for business-critical applications, and bandwidth isn't wasted on recreational or undesired applications," Estrada says.

✔ Resource Needs

Getting optimal use out of any monitoring system depends heavily on proper installation and configuration, and Estrada warns that even though having the in-house expertise to handle these tasks may decrease initial deployment time, "several days or weeks may still be required to be fully up and running, and the same dedicated staff may still be required to use the tools to perform ongoing network monitoring."

Cost justifications, business cases, and resource allocations must take these deployment and support needs into account. "Here again, network administrators must be careful of the up-front cost as well as the time and staff required to properly install, configure, and use the monitoring tools," Estrada says. "Administrators can fall into the trap of purchasing expensive monitoring overlay tools [and] then fail to get a proper return on the investment due to a lack of resources and staff that can properly use the monitoring solution. Be sure that a monitoring service reduces complexity, not adds to it."

Staffing and other resources in small and midsized enterprises often aren't able to support all of these installation and ongoing management tasks on their own. "Small businesses may not have the expertise or day-to-day resources to manage the system," Chaskar says. Gaining an in-depth understanding of what each particular system's requirements will be and what other options may be available is critical to selecting a system that will meet your needs without exceeding your capabilities. Chaskar encourages data center managers to explore alternative solutions such as deploying part or all of a network monitoring system from the cloud. It's important to discuss potential solutions with your vendor in order to ensure that any system you purchase is cost-effective and that your needs and support expectations are met. P

TOP TIPS

- ✔ Take a look at any monitoring equipment or applications that are in use on your current wired network—some of these tools may also work for monitoring a wireless network, too.
- ✔ Look for potential upgrade opportunities with your existing wireless network. Infrastructure upgrades may not only offer you better performance across your enterprise, they may also be a chance to integrate new monitoring tools into the network.
- ✔ Identify which metrics are important for your organization to track, so you can deploy resources most effectively.

Get Started

When selecting the right tools for best usability and maximum ROI, your shopping list should include:

Access management server: RADIUS, etc.; the same server supporting wired may also work for wireless

Firewall: check your wired firewall's capabilities, it might serve your purposes for the wireless network, too

IDS/IPS: may be provided by the wireless equipment manufacturer; can also be replaced or augmented by third-party providers' more sophisticated offerings

Network Access Control: depending on your network's architecture, the NAC currently being used for the wired side might also be deployed for wireless

Network management software: your equipment manufacturer may offer software solutions, or you can check around for third-party tools

Sniffing equipment: select from embedded or overlay versions and determine if fixed, mobile, or a combination of both best fits your needs

Wireless access equipment: access points/arrays, routers, client devices

Action Plan

- ✔ Identify wireless requirements—wireless protocol, capacity, throughput, coverage, etc.
- ✔ Determine how monitoring will be performed and how integrated tools may be used to monitor the network.
- ✔ Install new wireless networking equipment.
- ✔ Decide on policies for network access control, types of devices, and client requirements.
- ✔ Set up firewall and network access control parameters.
- ✔ Set up and deploy tracking and monitoring tools.
- ✔ Monitor network to classify devices and identify network baseline.
- ✔ Configure alerts that notify administrators of security issues and unusual events—detection of rogue devices or access points, etc.
- ✔ Review monitoring information regularly to look for threats and performance issues and to spot trends for future planning and provisioning.

Buying Tips:

Blade & Rackmount Servers

Servers, both blade and rackmount, are the tried-and-true anchors of the data center environment, delivering the processing power to host exponential workloads. But, regardless of which server form factor you're shopping for, there are several items you need to put on your purchasing checklist before you buy or install new equipment.

Ken Hostetler, director of product management at Silicon Mechanics (www.siliconmechanics.com), provides some sage advice that addresses some of the concerns you might have about finding the storage server that's best for your IT infrastructure.

Ask questions of every vendor you consider. "If you're not a high-flying technological wizard, ask questions about anything you don't understand," Hostetler says. "A good vendor wants to work with you to get you the right installation. If you sense the vendor doesn't have time for you, find someone who does. Ask around. Run searches on the Internet, and look at Web sites for clarity, completeness, and professionalism that meet your standards. Ask colleagues, acquaintances, your professional network, and anyone else you can think of about their server purchase experiences."

Hostetler also says you must make sure that the vendor provides a reasonable range of price and configuration options "without shoehorning you into a one-size-fits-all" solution. Additionally, consider what type of management tools are incorporated and redundancy levels. If you need some basic questions to submit to your potential vendor, try asking the following: Are you an independent vendor or a subsidiary? Where are you located? What type of client testimonies can you provide?

Plan your budgets, plural. According to Hostetler, vigilant budget planning doesn't just refer to pinching pennies. Aside from determining which vendor has the lowest TCO, you should pay attention to OS compatibility, workload allocations, and network constraints in order to "budget the space for the purchase . . . [as well as] power consumption and cooling requirements for future purchases."

Other budgetary details to keep in mind: preventing buyer's remorse and taking into account hardware support. "Beware of proprietary solutions that may seem easy, but are substantially more expensive and offer features and functions that you don't really need," Hostetler says. "When such solutions are the right answer, they are excellent, but when they are not, they are just expensive mistakes. Oftentimes, choices engineered with commodity hardware can be more closely tailored to both your needs and your budget." Hostetler explains that you may need to set aside a percentage for support staff to maintain hardware, or you can purchase a 24/7 onsite service contract.

Buyers' Checklist

- ✔ **Budget the features, not just the dollar bills.** Research specifications so you're prepared for the workload demand placed on new servers.
- ✔ **Communicate with vendors.** No matter how many questions you have to ask, make sure your vendor knows exactly what you need. A reliable vendor should be able to accommodate your customization preferences.
- ✔ **Ensure compatibility of old and new hardware.** Comb through your current inventory and determine which servers are a fit for your chassis units.
- ✔ **Get the support you really need.** When you're in a pinch and you're facing unanticipated downtime, you'll need backup and you'll need it quickly. Don't skimp on in-house staffing or around-the-clock support service.

Consider how new hardware will fit in. Unless you're building your server room from scratch, you'll probably add another layer to your stack. This necessity affords another opportunity to ask your vendor the hard-hitting questions about the various mission-critical functions that your hardware is already responsible for. "Now is the time to find out if the driver running that piece of aging in-house hardware is going to create a conflict, not after you've already bought and paid for the thing that is taking it down," Hostetler says. Don't overlook scalability for future server optimization, especially if you intend to expand your network or extend the system anytime in the future.

Key Terms

Converged infrastructure. An IT architecture in which a blade server's I/O, networking, switching, and storage is virtually managed.

Core. Cores comprise multiple independent integrated circuits that work to execute program instructions.

Scalability. Rackmount servers with scalable features allow for increasing amounts of data and will support additional resources.

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PRODUCT SPOTLIGHT

Blade & Rackmount Servers

Aberdeen Stirling 163G

Description

The 1U Stirling 163G from Aberdeen uses a GPU in addition to a CPU to perform general-purpose scientific and engineering computing tasks. Stirling 163G servers are designed to boost performance at 1/10th the cost and 1/20th the power consumption of the latest quad-core CPUs.

- 1U form factor with support for two double-width GPU cards
- Configurable with Nvidia Tesla or Fermi GPUs
- Up to 12 CPU cores (dual six-core Intel Xeon 5600 processors)
- Up to 192GB DDR3 memory capacity
- Three 3.5-inch SATA drives with RAID 0, 1, 5, and 10 support
- Optimized for HPC and GPU supercomputing
- Five-year warranty

Best For: High-end, high-density GPU applications such as those found in the medical, energy, telecommunications, finance, and science industries.

Aberdeen Stirling 266G

The 2U dual-node Stirling 266G GPU server from Aberdeen provides endless computational scalability for high-bandwidth problems such as sequencing (virus scanning, genomics), visual computing problems such as graphics, and image processing. GPU computing uses a CPU and GPU together in a heterogeneous computing model, wherein the sequential part of the application runs on the CPU and the computationally intensive part runs on the GPU.

- 2U form factor with support for two double-width GPU cards
- Configurable with Nvidia Tesla or Fermi GPU cards
- Up to 12 CPU cores (dual six-core Intel Xeon 5600 processors)
- Up to 192GB DDR3 memory per node
- Six 3.5-inch SATA drives per node
- Optimized for HPC and GPU supercomputing
- Five-year warranty

Best For: A range of graphical and computationally intensive applications, such as medical, energy, telecommunications, finance, science, and engineering

Hardcore Computer Liquid Blade Server

The Liquid Blade Server from Hardcore Computer is the only rack-mounted high-performance server with patented total submersion technology, a revolutionary cooling system that is 1,350 times more efficient by volume than air cooling. Submersion technology keeps servers running cooler and more reliably with the highest level of sustained performance. Liquid Blade eliminates the requirement for inefficient and expensive air-conditioning systems, reducing cooling costs by as much as 80%.

- Exceptionally fast, smart, and reliable dual Intel Xeon 5500 and 5600 CPUs
- Available Intel Xeon 5698 CPUs with guaranteed overclocking beyond 4.7GHz
- Up to 384GB memory configurations available
- Ultimate simulation/visualization server featuring Nvidia Tesla and Quadro GPU cards
- 40Gbps InfiniBand, 10Gbps Ethernet, and other connectivity options available
- Up to six solid-state drives supported by motherboard SATA II

Best For: High-performance data center and grid computing applications where reliability and availability are mission-critical.

Price: Starts at $5,684

Portwell CAR-1000

Description

Unlike commercial motherboard-based systems, the CAR-1000 1U rackmount communication appliance from Portwell features a reset button that will change the system back to the manufacturer's default setting, if required. CAR-1000 is also perfect for customers who need six Gigabit Ethernet ports and applications that require the high performance and low power consumption of Intel's dual-core Atom D510 processor. CAR-1000 is offered with a choice of three Intel Atom processors—single-core N450 or D410 and dual-core D510—for flexible customized configuration.

- Intel Atom D510, D410, or N450 processor and ICH8M I/O controller
- Supports fanless solutions when built with Intel Atom processor N450
- Up to 4GB DIMM with D510/D410; up to 2GB DIMM with N450
- Six Gigabit Ethernet ports with two bypass segments
- Mini PCI slot for Wi-Fi and Crypto card option

Best For: Network security solutions to SOHO and remote/satellite offices.

Portwell CAR-4010

Portwell's CAR-4010, a functional and modular 1U rackmount communication appliance, is based on the Intel C206 chipset, which offers a wide range of CPU support, including Intel Xeon E3-1200 processors and Intel Core i3-2120 processors. CAR-4010 is a modular platform designed to help customers maximize flexibility and cost savings. Customers have options to install two PCI-E add-on cards or additional Portwell Ethernet modules. CAR-4010 also supports IPMI 2.0 remote network monitoring and management.

- LGA1155 Intel Xeon E3-1200 Series processors and Intel C206 chipset
- Dual-channel DDR3 1333/1066 memory platform, up to 16GB
- Eight onboard RJ-45 Gigabit Ethernet ports with PCI-E Gen. 2.0 technology
- Two software-controlled Gen. 2 bypass segments

Best For: Server virtualization and network security solutions for midsized and large enterprises.

Silicon Mechanics Rackform iServ R485

The Silicon Mechanics Rackform iServ R485 is a powerful 5U rackmount server that will accommodate eight CPUs and four GPUs. This highly capable server features the new Intel Xeon E7-8800 Series processors with up to 10 cores, up to 20 threads, and up to 30MB of shared cache. The E7-8800 includes Intel Scalable Memory Interconnects and Scalable Memory Buffers for high-speed serial links that support cost-effective, commodity, RDDR3 memory with two integrated memory controllers per socket, up to eight DIMMs per memory controller, and four DDR channels. The addition of Recoverable Machine Check Architecture and Advanced Instruction Sets makes this server the perfect resource for those who need a computing powerhouse.

- 5U rackmount server
- Eight Intel Xeon E7-8800 Series processors
- 64 DDR3 DIMM sockets
- Integrated dual-port Gigabit Ethernet adapter
- Integrated IPMI with KVM over LAN
- Six PCI-E 2.0 expansion slots
- 16 hot-swap 2.5-inch SAS/SATA drive bays
- 80 PLUS Gold Certified redundant power supply

Best For: High-end scientific and engineering tasks that can benefit from the deployment of multiple GPUs for modeling and visualization, or a highly reliable, dense, and powerful base for virtualized environments.

Contact: (866) 352-1173 | sales@siliconmechanics.com | www.siliconmechanics.com

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

HP ProLiant BL685c G7

The HP ProLiant BL685c G7 features the latest AMD Opteron 6100 series processors, multicore scalability, and integrated HP Virtual Connect FlexFabric architecture, which helps simplify network connections and lower infrastructure costs. The HP ProLiant BL685c G7 server delivers twice the performance at prices starting at 30% lower than the previous generation.

- Simplifies management and lowers infrastructure costs by converging LAN and SAN traffic over the same flexible connection
- iLO3 (Integrated Lights-Out 3) Advanced technology helps simplify remote management
- HP Insight Control software improves management productivity while reducing operational expenses

Best For: Virtualization and compute-intensive database applications.

Price: Starts at $9,769

NEC Express5800/R120b-2

The Express5800/R120b-2 from NEC is a dual-socket 2U rack server that combines outstanding performance, reliability, energy-saving parts, and green technology. In addition, the platform features internal expandability and large memory capacity to allow for future growth. The R120b-2 comes standard with a practical remote management solution. Remote monitoring and management are possible through a Web browser regardless of the status of the operating system and even when the platform is turned off.

- Energy-efficient server for the most demanding applications
- Powered by Intel Xeon 5500 and 5600 series processors
- Up to 192GB of DDR3L memory with 2/3/4/6-way interleave
- Support for 80 PLUS Gold-certified energy-efficient power supply, low-voltage DDR3L DIMMs, and dynamic fan control increase power efficiency

Best For: Virtualization solutions, database servers, consolidation of business-critical applications, and Web servers.

NEC Express5800/R320 Series Server

NEC's Express5800/R320 Series of fault-tolerant servers provides an innovative solution to address planned and unplanned downtime for mission-critical IT infrastructures. Through full system redundancy, NEC's R320 servers leverage Intel Xeon processors to achieve continuous availability and deliver unprecedented system integrity, transparent failover, and a low total cost of ownership.

- Up to 99.999% uptime—less than five minutes of downtime per year
- Delivers continuous processing through any form of server failure
- Provides data integrity for most critical SQL Server workloads
- Delivers fault-tolerant Hyper-V availability

Best For: Mission-critical application deployments and virtualization environments.

Price: Starts at $18,799

Silicon Mechanics Rackform iServ R4820 MicroCloud Server

The Rackform iServ R4820 from Silicon Mechanics offers up a heady combination: extreme density and energy efficiency without the extreme price. This 3U server supports eight independently serviceable, cable-free nodes. Based on the Intel Xeon E3-1200 processor series with the latest microarchitecture, you have the upside of Intel Turbo Boost Technology 2.0 and Intel Hyper-Threading in eight separate 1P nodes, all in only 3U of space.

- 3U 8-node rackmount server
- Independently serviceable, cable-free nodes
- One Intel Xeon E3-1200 Series processor per node
- Four DDR3 DIMM sockets per node
- One integrated dual-port Gigabit Ethernet adapter per node
- One integrated IPMI with KVM over LAN per node
- One low-profile PCI-E expansion slot per node
- Two hot-swap SATA drive bays per node
- 80 PLUS Platinum Certified redundant power supply

Best For: The R4820 makes a highly compelling alternative to blade servers.

Contact: (866) 352-1173 | sales@siliconmechanics.com | www.siliconmechanics.com

Supermicro SuperBlade TwinBlade

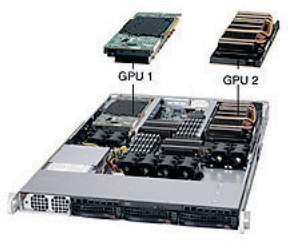
The innovative TwinBlade doubles the number of dual-processor compute nodes per 7U enclosure to 20, allowing for up to 120 DP servers per 42U rack for a dense, cost-effective solution. Based on the SBI-7226T-T2 blade supporting the latest Intel Xeon 5600 Series processors, this system delivers unprecedented performance per dollar and per square foot. Available with dual 40Gbps QDR InfiniBand switches, this blade solution features industry-leading 94% power supply efficiency.

- 20 DP (Intel Westmere and AMD G34) nodes in a 7U enclosure
- 128GB ECC-registered DDR3 per DP node
- Dual 40Gb InfiniBand, 10GbE, and 8Gb FCoE switches
- Dual 1/10Gb Layer 2/3 Ethernet switches

Best For: High-performance computing in data center, enterprise, and cloud computing deployments.

Contact: (408) 503-8000 | www.supermicro.com

Supermicro SuperServer 6016GT-TF-FM205



The 1U SuperServer 6016GT-TF-FM205 rackmount server from Supermicro features an Intel Xeon 5600/5500 processor and 192GB of DDR3 1333/1066/800MHz ECC registered DIMM. The SuperServer 6016GT-TF-FM205 also features the Super X8DTG-DF motherboard (with dual 1,366-pin LGA sockets).

- Supports RAID 0, 1, 5, and 10
- Comes integrated with two Nvidia Fermi M2050 GPU cards
- IPMI 2.0 with support for virtual media over LAN and KVM over LAN
- Intel 82576 dual-port Gigabit Ethernet controller with support for 10BASE-T, 100BASE-TX, 1000BASE-T, and RJ-45 output
- 80 PLUS Gold Certified power supply

Best For: Environments that would benefit from high compute density and uniform large-scale deployment-based rackmount solutions.

Contact: (408) 503-8000 | www.supermicro.com

Desktop Virtualization's Impact On Software Licensing

Partner With A Reliable Source To Avoid Problems

Desktop virtualization makes sense for many SMEs. By serving desktops from a centralized location in the data center, IT managers can manage access to applications and data, OS and software updates, and security issues without having to visit every PC in the office. They also can secure data on the servers rather than leave it vulnerable on individual workstations. Implementing desktop virtualization can also extend the life of older PCs because IT managers no longer have to rely completely on CPU speed or hard drive size for the systems to work.

You would think that deploying a VDI (Virtual Desktop Infrastructure) would also simplify the licensing of operating systems and software or perhaps save money on the cost of licensing. Unfortunately, however, desktop virtualization, at least for now, makes licensing more complex than it is for a traditional setup.

In a recent research note, Gartner analysts Stewart Buchanan and Philip Dawson mention that hardware capacity, including infrastructure, data repositories, and middleware, determine costs such as license fees, support, and maintenance. "Virtualization breaks the direct relationship between software and the underlying hardware capacity, enabling mobility and overcoming its limitations," they write. "By doing so, virtualization also overcomes hardware capacity limitations on the cost of software."

Increased Complexity

Buchanan says that server-hosted virtual desktops and application streaming have introduced additional complexities to the task of software asset management. "There have been no really fundamental changes to device-based licensing from major desktop software vendors, although Microsoft has responded to client concerns by creating additional rights," he says.

Ian Song, senior research analyst at IDC, says that for Microsoft Windows, you would need to purchase a VDA (Virtual Desktop Access) subscription for each copy of Windows installed on a virtual desktop if you don't already have Microsoft's SA (Service Assurance) as part of its VDI offerings. Although Microsoft does offer VDI service, there are many players jockeying for customers in this space.

In addition to purchasing VDA to use Windows on a VM, software asset managers also must track the primary user of each licensed device "if they wish to take advantage of additional volume licensing rights or software assurance benefits to cover the use of third-party Internet kiosks and other devices," Buchanan says.

Licensing Misinformation

Sandi Conrad, senior research analyst at Info-Tech, says that a lot of false information exists about the cost of licensing virtualized desktops. "I have heard some virtualization partners use [lower licensing costs] as a selling point, and it's incorrect in almost all cases," she says.

Conrad explains that licensing agreements with virtual devices pretty much mimic the policies followed for physical ones. "In most cases, the end-user licensing agreement for each manufacturer states that you need a license for each device or each user, regardless of whether it's installed on the server or whether it's installed on the desktop," she says.

Song adds that "the responsibilities, liability, and compliance all lie with the owner of the VMs."

Controlling Access To Applications

In addition to making sure that you own the proper license for each seat of a given OS or application, you also need to figure out how you will control access to that application. For example, while everyone in your organization may use Windows 7 and Microsoft Office, it is likely that only a fraction of them use Adobe Photoshop.

"You have to put controls in place on the server side so that only the following people who have licenses can access the product. If you don't, then you would have to buy a license for everyone in the company, which becomes an expensive proposition from a licensing standpoint," Conrad says.

Getting The Right Advice

The myriad complexities involved in software licensing for virtual desktops also highlight the challenge of getting good advice. For his part, Buchanan has seen plenty of situations where a service provider's "free advice" leads to budget headaches for customers.

"A few clients have been encouraged to buy more licenses than necessary to manage poorly understood compliance risks. Others have been encouraged to push ahead with deployment only to create compliance problems, [which then leaves them] little choice but to purchase more than budgeted," Buchanan says.

"It's important to have a virtualization partner that really understands licensing and to have a comfort level with the information they're getting," Conrad says. "If you're not comfortable with the information you're getting, you need to ask someone else."

Conrad's biggest piece of advice: "Don't be afraid to see if there's another source out there that you can get that information from that's reliable," she says.

Key Points

- OS and software licensing becomes more complicated when you move to a VDI structure.
- To avoid future problems, ensure that you follow the software provider's licensing structure and that you have controls in place so only designated users within your enterprise can access these applications.
- Don't fall prey to misinformation. Ask for a second opinion if necessary.

Budget Your Software Costs Before Migrating To A Production VDI

Gartner analysts Stewart Buchanan and Philip Dawson suggest holding off on making the move to a VDI until you have figured out the software you plan to use and how much it will cost.

"Don't expect easy answers. Improve the maturity of your budgeting and procurement, software asset management, and forecasting to negotiate and manage the best possible value for money," they suggest.

Although you may have little leverage when discussing licensing terms regarding software you plan to redeploy in a virtual environment, Buchanan and Dawson say you should try to negotiate the best deals when buying new software.

They also advise keeping good records and being savvy to areas where needs may differ in the support of virtual machines from physical ones. Buchanan and Dawson add that some vendors may reinterpret physical processor licensing rules to charge more for multicore processors, among other things.

News

Technology Sector Leads IPO Filings

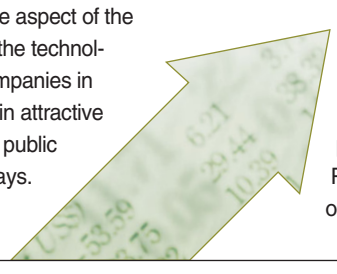
Although many economic challenges have surfaced in the United States, the technology sector proved its resilience with strong growth in spending this year and now accounts for 40% of the total value of all IPOs (initial public offerings) in the second quarter. According to PricewaterhouseCoopers' "U.S. Technology M&A Insights Q2 2011 Update," an impressive 11 tech IPO transactions occurred during the second quarter, amounting to $4.5 billion.

"Under the current turbulent economic conditions, public investors are looking to technology as a driver of growth. Investors tend to consider technology, when compared with other industries, as a high earnings growth potential industry," says Aaron Higley, director of PwC's transaction services. "Growth in the IT industry has not only enabled companies to access various financing sources, including public investors and alternative sources of financing (e.g., venture capital, private equity), but has created M&A opportunities."

More New Offerings To Come

Noteworthy IPOs listed in the report include the Yandex search engine, Freescale Semiconductor, and the popular Pandora Internet radio company. Perhaps most notable was the first-ever IPO of a social networking site, LinkedIn. Shortly after the second quarter, other highly touted IPOs were announced, which include Groupon, an online social couponing site, and Zynga, an online gaming site.

"Social media is one aspect of the growing interest in the technology sector, and companies in that business remain attractive candidates for new public offerings," Higley says. He also offers a word of caution for those considering entering the public market. "Like any company looking to access the public markets, regardless of sector, it is critical that companies focus on readiness. They need to be ready for the initial offering, and at the same time prepare to meet the new obligations of a public company," he advises.



"Technology companies continue to rank No. 1 or 2 in the current IPO pipeline," Higley says. PwC anticipates technology firms to continue their robust spending and various transactions throughout the year. PwC highlighted such transactions for the second quarter in its report, including Microsoft's acquisition of Skype Global for $8.5 billion and Texas Instruments' purchase of National Semiconductor for $6.5 billion. Higley says the convergence of such tech sectors "is largely driven by key technology players seeking to increase their addressable markets and reach an expanded customer base." He adds that PwC expects more technology IPOs to come to market, likely remaining as one of the top sectors.

HOW TO

Stop Server Downtime Before It Occurs

A Few Simple Steps Can Help Keep Servers Performing At Their Best & Prevent Costly Outages

Key Points

- Maintaining a clean environment with the right temperature and humidity levels can help protect your servers.
- Schedule preventive maintenance on your servers once or twice a year and use a monitoring solution to spot problems that occur between check-ups.
- Make sure employees know how and when to contact support for problems with servers.

Everyone who owns a car knows that changing the oil and replacing the tires on a regular basis will help the vehicle run better and last longer, protecting your investment. In a similar way, taking a few preventive steps can also help your data center servers run better and last longer. Even more importantly, these activities can help prevent server downtime, which in some cases can quickly lead to thousands or even millions of dollars in losses.

To keep your servers in tip-top condition, you need to maintain the right environment, take a proactive approach to maintenance and monitoring, and develop a plan for what to do when a server does fail.

✔ Maintain The Right Environment

Most large data centers have sophisticated equipment to monitor the physical conditions in the facility, but many smaller firms have server rooms that aren't at the correct temperature or humidity levels or aren't as clean as they should be. Joe Guenther, marketing associate at TERiX Computer Service (www.terix.com), notes, "Systems may still operate in too-hot, too-wet, too-dusty environments, but they absolutely will not deliver the life span you paid for and will be more prone to amber conditions and failure than if they were operated within recommended environmental conditions."

Mark Gonsalves, data center services division manager for Controlled Contamination Services (www.cleanroomcleaning.com), says that data centers should set up a quarterly cleaning schedule and clean the underfloor at least annually. "It operates better cleaner," he says, adding that having a clean environment could mean not having to replace expensive equipment. He says that some manufacturers will void hardware warranties if your data center is particularly dirty.

✔ Be Proactive

Many other server problems can be avoided or mitigated with preventive maintenance and appropriate monitoring software. "You catch problems before they happen," says Chad Peters, product support manager for SEI Service (www.seiservice.com).

Preventive maintenance has three key pieces: examining the error logs, checking for firmware or software updates, and physically inspecting the room. Peters says that his company checks error logs once or twice a year. "Do we have a drive that's starting to log errors? Do we have a fan that's not spinning at the right RPMs? Do we have a fiber card that's starting to get some problems on it, some errors to log? If so, then we can proactively change before that component goes down," he explains.

When you check error logs, it's also a good time to double-check the firmware and software on your servers to make sure that you haven't missed any important updates. "Get a clear picture of what systems you have and what patch versions of the OS are running on it," advises Larry Quinn, TERiX's director of sales and marketing. "Skimping on asset and patch management is a short-term savings tactic that guarantees long-term expense."

Preventive maintenance should also include a physical inspection of your facility to make sure all cables are seated properly, that airflow management devices are still in place, and that the room is as clean as it should be.

In between scheduled preventive maintenance sessions, you should use a monitoring solution to alert you when problems begin to occur with your servers. A wide variety of solutions that vary in complexity and price are available, so you'll need to do some research to find the best solution for your needs.

✔ Have A Support Plan

Finally, remember that problems will happen. You can help limit the amount of downtime that results from any server outages by creating a disaster recovery plan and training employees on how and when to contact support.

"Make sure that the path to support is plain and easy for every IT employee to initiate," says Christiana Johnson, marketing associate at TERiX. "This may include keeping an updated hard copy of all maintenance contacts and contact numbers (in case your maintenance issue includes a power outage or disaster management event) with clear instructions as to the appropriate party to contact for a given platform, brand name, or OEM product." Whether your support comes directly from the OEM or from a third party, contacting them right away will help you get your servers up and running again as quickly as possible. P

Get Started

In order to keep your servers in good shape, you'll need a monitoring solution—either from the OEM or a third-party solution. Good monitoring software will alert you before a potential problem has become severe so that you can plan to change out components before an outage occurs. You may also want to use an asset management solution that can help you keep track of what hardware you have and what firmware updates and patches have been installed.

You should have compressed air, a HEPA vacuum, and microtowels on hand for keeping your server clean. Any staff involved in physical maintenance will also need screwdrivers, other hand tools, and antistatic devices.

Action Plan

- ✔ Maintain a dust-free environment with the correct temperature and humidity for your servers.
- ✔ Set up a preventive maintenance and cleaning schedule.
- ✔ Install a monitoring solution that will alert you when problems occur.
- ✔ Train your employees in best practices and make sure they know when and how to call in support.

TOP TIPS

✔ **Prevent accidents.** Paying attention to the little things can help minimize the number and severity of accidents you experience. Staff should take the appropriate steps to avoid static discharge and should only handle components with clean hands. In addition, "Never hold screws or other small items over open cases where they could accidentally drop in when doing maintenance tasks," advises Christiana Johnson, marketing associate at TERiX (www.terix.com).

✔ **Maintain a consistent electrical supply.** "Power spikes and dips are taxing on server systems and, if extreme, the dips can cause erratic performance and the spikes can cause permanent damage to power supplies and internal systems," says Joe Guenther, marketing associate at TERiX. To avoid problems, make sure that you have uninterruptible power supplies at a minimum and dedicated electrical architecture if possible.

✔ **Keep it clean.** Servers and other electronic equipment will always attract a certain amount of dust, but there are things you can do to reduce the amount of dust in your server room. "Best practices include limiting the amount of access to the room or the data center and not opening up cardboard or other boxes or uncrating items in there," says Mark Gonsalves, data center services division manager for Controlled Contamination Services (www.cleanroomcleaning.com). In addition, he says that special care should be taken to clean up after any construction occurs. Because of the volume of airflow in a typical data center, sheetrock particles often become airborne and may corrode vital components.

✔ **Retire servers when they become inefficient.** Finally, just because you can extend the life of a server with good maintenance doesn't mean that you should keep using that server forever. "There is a real possibility that you can keep a server running optimally far beyond its actual usefulness to the company," says Monica Bower, marketing manager at TERiX. If it's been a number of years since a piece of hardware was replaced, you may actually save money by retiring it and upgrading to newer, more efficient equipment.

PROCESSOR

Upcoming IT Events

Network With Your Peers At These IT Training & Association Meetings Across The United States

NOVEMBER

Central Plains ISSA
Nov. 4, 1 p.m.
Wichita Marriott Restaurant
9100 E. Corporate Hills Drive
Wichita, Kan.
issa-cp.org

AnDevCon II
Nov. 6-9
Hyatt Burlingame
San Francisco Airport
1333 Bayshore Highway
Burlingame, Calif.
www.andevcon.com

ISSA Greater Augusta
Nov. 7, 11:30 a.m. to 1 p.m.
Augusta State University-
Washington Hall Towers
2500 Walton Way
Augusta, Ga.
augusta.issa.org/drupal/

Ethical Hacking & Countermeasures (CEH)
Nov. 7-11, 9 a.m. to 5 p.m.
Chicago, Ill.
www.solutient.com/ceh

Metro Atlanta ISSA Annual Conference
"Security By Design"
Nov. 8-9
The Loudermilk Center
40 Courtland St. NE
Atlanta, Ga.
www.gaissa.org

AITP Greater Wheeling
Nov. 9, 5:30 p.m.
The White Palace
at Wheeling Park
1801 National Road
Wheeling, W.Va.
www.aitp-wheeling.org

AITP Research Triangle Park
Nov. 10
University Club
4200 Hillsboro St.
Raleigh, N.C.
www.rtp-aitp.org

Data Connectors Orlando Tech-Security Conference
Nov. 10
Orlando, Fla.
www.dataconnectors.com
/events/2011
/11Orlando/agenda.asp

SQL Server Society of Las Vegas
Nov. 10
sssolv.com

Cloud Computing Users Group
Nov. 14
Platform Labs
1275 Kinnear Road
Columbus, Ohio
www.platformlab.org

AITP Oklahoma City
Nov. 15
aitpokc.org

AITP Pittsburgh
Nov. 15, 5:30 p.m.
Sokol Club
2912 Carson St.
Pittsburgh, Pa.
www.aitp-pgh.org
/events.htm#November

AITP Southwest Missouri
Nov. 15
aitpspringfield.org

ISSA Inland Empire
Nov. 15, 6 to 9 p.m.
Coco's in Upland
60 W. Foothill Blvd.
Upland, Calif.
ie.issa.org

ISSA Silicon Valley
Nov. 15
sv-issa.org

VMware User Group
Nov. 15, 8 a.m. to noon
Platform Labs
1275 Kinnear Road
Columbus, Ohio
www.platformlab.org

AITP Atlanta Chapter
Nov. 17, 5:30
to 8 p.m.
Crowne Plaza Ravinia
4355 Ashford Dunwoody Road
Atlanta, Ga.
www.aitpatlanta.org

AITP St. Louis
Nov. 17, 5:30 p.m.
Crowne Plaza Clayton
7750 Carondelet Ave.
St. Louis, Mo.
stlouisaitp.org

Data Connectors San Francisco Tech-Security Conference
Nov. 17
San Francisco, Calif.
www.dataconnectors.com
/events/2011/11SanFrancisco
/agenda.asp

ISSA Northern Virginia
Nov. 17, 5:30 p.m.
issa-nova.org

ISSA South Florida
Nov. 17
Miami, Fla.
www.sfissa.org

Upcoming IT Events

PROCESSOR

SIM
Minnesota
Nov. 17, 2:30 p.m.
Northland Inn
7025 Northland Drive N.
Minneapolis, Minn.
www.simnet.org

ISACA
Kentuckiana Chapter
Nov. 18
Louisville, Ky.
www.isacaky.org

ISSA
Middle Tennessee
Nov. 18, 11:30 a.m.
to 1 p.m.
HCA
Nashville, Tenn.
www.issa-midtn.org

Sharepoint 2010:
A Collaborative Platform
for Developers
Nov. 21, 9 to 11:30 a.m.
New Horizons
1890 Commerce Center
Fairborn, Ohio
tinyurl.com/NHD1121

Sharepoint 2010:
A Collaborative Platform
for Developers
Nov. 21, 2 to 4:30 p.m.
New Horizons
10653 Techwoods Circle
Cincinnati, Ohio
tinyurl.com/NHD1121

AITP
California
Southland
Nov. 23
Coco's Bakery
12032 Harbor Blvd.
Garden Grove, Calif.
www.aitpcalsouthland.org

AITP
Akron
Nov. 29
356 Fighter Group Restaurant
4919 Mt. Pleasant Road
North Canton, Ohio
www.akron-aitp.org
/index.htm

DECEMBER

Data Connectors
Albuquerque
Tech-Security
Conference
Dec. 1
Albuquerque, N.M.
www.dataconnectors.com
/events/2011/12Albuquerque
/agenda.asp

Central Plains
ISSA
Dec. 2, 1 p.m.
Wichita Marriott Restaurant
9100 E. Corporate Hills Drive
Wichita, Kan.
issa-cp.org

TakeDownCon 2
Dec. 2-7
The M Resort Las Vegas
Henderson, Nev.
www.takedowncon.com

AITP
Research Triangle Park
Dec. 8
University Club
4200 Hillsboro St.
Raleigh, N.C.
www.rtp-aitp.org

Data Connectors
Phoenix
Tech-Security
Conference
Dec. 8
The Buttes
2000 Westcourt Way
Tempe, Ariz.
www.dataconnectors.com
/events/2011/12Phoenix
/inv_ex.asp

SQL Server Society
of Las Vegas
Dec. 8
sssolv.com

AITP Greater Wheeling
Dec. 13, 5:30 p.m.
The White Palace
at Wheeling Park
1801 National Road
Wheeling, W.Va.
www.aitp-wheeling.org

AFCOM Central Texas
Dec. 15, 11:30 a.m.
to 1:30 p.m.
Marie Callender's Restaurant
9503 Research Blvd.
Austin, Texas
www.afcom.com/afcomnew
/CentralTexas.HTML

Data Connectors
Ft. Lauderdale
Tech-Security
Conference
Dec. 15
Ft. Lauderdale, Fla.
www.dataconnectors.com
/events/2011/12FtLauderdale
/agenda.asp

ISSA Northern Virginia
Dec. 15, 5:30 p.m.
issa-nova.org

ISSA
South Florida
Dec. 15
Miami, Fla.
www.sfissa.org

AITP
Oklahoma City
Dec. 20
aitpokc.org

AITP
Southwest Missouri
Dec. 20
aitpspringfield.org

Do you have an event you'd like to see listed?
Send an email to feedback@processor.com.

Tested For Success

Rigorous Testing Ensures That Used Equipment Is Ready For Prime Time

Data center managers considering used equipment sometimes wonder about the quality of the components that are offered for sale. Experienced resellers understand these concerns and know that by subjecting all incoming equipment to comprehensive testing, they can provide components that will consistently meet their customers' reliability and longevity needs. This is also what allows reputable resellers to stand behind their warranties. "Investing in staff and lab space for testing isn't just great for customer satisfaction," says Bill Keefe, Cisco product manager at Vibrant Technologies (www.vibrant.com). "It's good business."

In order to properly evaluate the tremendous value that refurbished equipment represents, it's important to understand the testing process that components go through before entering the secondary market.

Inspection and diagnostics. A visual inspection and complete diagnostics testing are usually the first steps in the process. Technicians ensure that components are complete, that they're operating at the original specifications, and that everything—firmware, software, and hardware—is current and in proper working order. "We look for the original levels, then we make sure the firmware is updated and confirm the components are intact," says Ezie Isaac, president and CEO of Continental Computers (www.conticomp.com). But successfully getting through the diagnostics phase doesn't mean that a piece of equipment is home free. Other factors can still move items from the refurbish line to the recycle heap. As Keefe explains, "A component may pass our test and audit but ultimately miss the cut for reasons ranging from cosmetic repairs that aren't worth the time to anomalies that indicate pending failure or tampering."

"You can't just turn the equipment on and perform a "green light" test," adds Stephen Jaynes, COO at xByte Technologies (www.xbyte.com). "All equipment should be tested and updated using the diagnostic utilities from the manufacturer. They can be sharper in some of their predictive failures and enable refurbishers to update all BIOS and firmware levels to the most current state."

Multiple test cycles. It's common for equipment to undergo more than one round of testing before it hits your loading dock. "Systems are tested and parted out upon receipt and then built up and tested again on the way out the door," Keefe says. Components that have been in the reseller's inventory for a while usually warrant another look before being released, too. "If it sits on the shelf for six months, you want to retest it before you ship it out," Isaac says.

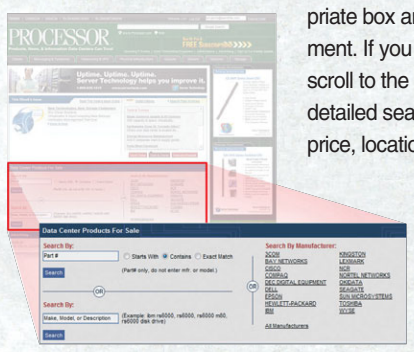
"The SME should make sure that equipment is tested just before it is shipped to them," Jaynes says. "If the refurbisher only tests when they originally received the equipment, they will miss issues that may occur with the customer's specific hardware configuration and general failures while sitting on a shelf."

Don't forget the hardware. The hardware portion of any component plays a big role in reliability. Non-working fans and sticky bearings can lead to overheating or force other parts to work harder than necessary, both of which often lead to premature equipment failure. Reputable resellers are careful to inspect the exterior case and internal mechanics to ensure that the item's durability won't be compromised by damaged or defective hardware. "The first things you want to look for are the mechanical items, which are cheap [and] easy to find and replace but could cause a major headache down the line," Isaac says. "A $30 fan could cause several thousand dollars in damage. If it's defective or noisy, replace it." P

Find Used & Refurbished Equipment
For Sale

Once you've made the decision to purchase used or refurbished equipment, finding the equipment you need is easy with Processor's online Data Center Products For Sale Database.

From Processor's home page (www.processor.com), you can search for a specific part number, make, model, or description. Enter the information in the appropriate box and click Search. You'll see a list of available equipment. If you don't see the particular piece you're looking for, scroll to the bottom of the search results page to conduct a more detailed search. There, you can search by part number, model, price, location, and more.



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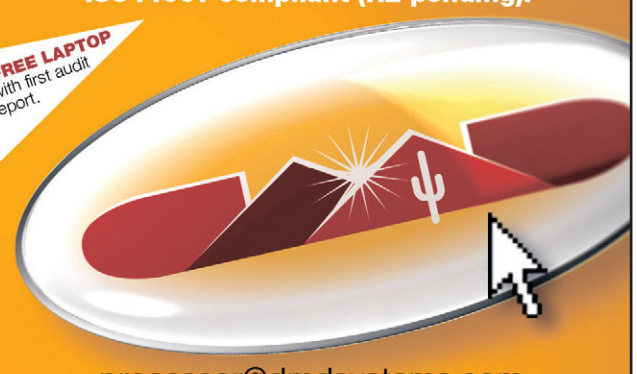

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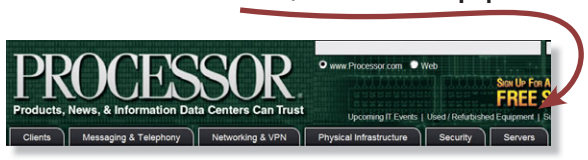

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Is Now The Time To Add Solar?

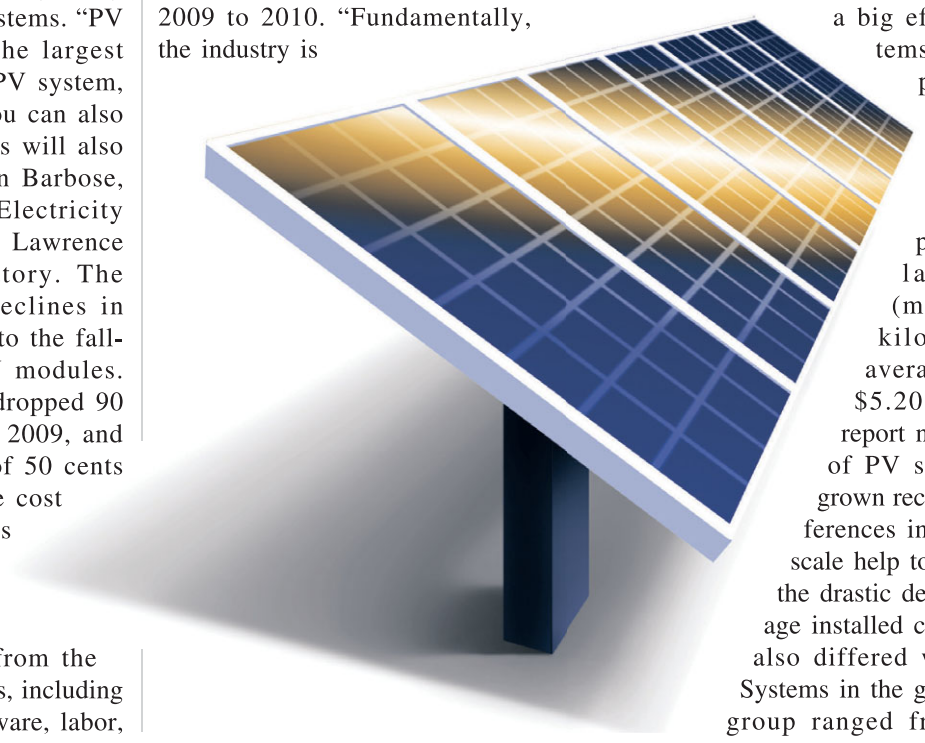
A New Report Highlights Rapid Price Declines For Solar Tech

Prices for photovoltaic systems are falling, *according to Lawrence Berkeley National Laboratory's recent "Tracking the Sun IV" report. The average price per installed watt fell from $7.50 in 2009 to $6.20, which was a drop of 17%. And those numbers were prior to the receipt of any financial incentives or tax credits. Even better news is that Berkeley Labs saw another 11% drop from the end of 2010 throughout the first six months of 2011.*

Price Declines Across The Board

The price declines affect nearly every facet of PV (photovoltaic) systems. "PV module prices, which are the largest single cost component in a PV system, have continued to fall, so you can also expect that total system costs will also continue to fall," says Galen Barbose, research associate for the Electricity Markets and Policy group at Lawrence Berkeley National Laboratory. The report indicates that the declines in costs are due, in large part, to the falling prices of wholesale PV modules. Prices for just PV modules dropped 90 cents per watt from 2008 to 2009, and Berkeley Labs saw a drop of 50 cents per watt 2009 to 2010. "The cost to manufacturer PV modules is dropping as the industry scales up and becomes more competitive," Barbose says.

Another interesting note from the study is that non-module prices, including items such as mounting hardware, labor, permitting, fees, shipping, overhead, and taxes, fell by 60 cents per watt from 2009 to 2010. "Fundamentally, the industry is maturing, and you're beginning to see lots of high-volume installers who have the scale and expertise to become more efficient in the installation and design process," Barbose says, adding that equipment managers are adding to the cost-efficiency by developing PV modules and associated hardware that's easier to install.



Economies of scale also had a big effect on PV systems' installed price per watt. Systems smaller than 2 kilowatts cost much more, averaging $9.80 per watt, while larger systems (more than 1,000 kilowatts) had an average cost of only $5.20 per watt. The report notes that the size of PV systems has also grown recently, and the differences in the economy of scale help to partially explain the drastic decline in the average installed cost. System costs also differed widely by state. Systems in the greater-than-10kW group ranged from an average low of $6.30 per installed watt in New Hampshire to an average high of $8.40 per installed watt in Utah. The states with the two largest markets for PV systems are California and New Jersey, and both were in the center of the average installed watt price range.

Should You Go Solar?

Barbose recommends taking a case-by-case approach for data centers looking to invest in PV systems. "It'll depend on where the data center is located, what kind of solar resources are available, and what sort of state and local incentives are available," he explains. "From a consumer perspective, there are a couple of countervailing trends. One is that prices are continuing to fall, so there may be some value in waiting until prices fall further. But at the same time, incentives are also being ratcheted down, so it may make sense to invest now."

The report indicates that the rise of PV systems has been driven in large part by government incentives, which has helped to create competition and further drive down prices. Now may be a good time to see what kind of government and utility incentives are available in your area. All in all, this is good news for data centers looking to add solar power to supplement energy usage. P

Processor Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry.

Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

To list your company and products, call (800) 247-4880.

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